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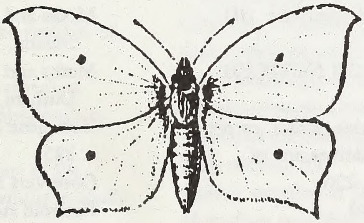
VOL. 52

Edited by
Brian O.C. Gardiner, F.L.S., F.R.E.S.



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CORRIGENDA

On page 189, under the exhibit notice of Peter Tebbut, a line was ommitted. After ". . .comparison", on line three, the text should read :- Brimstone ab. *centriconjuncta*, Comma ab. *obscura* and Ringlet abs. *parvipunctata* and *rubrescens*. Large white ab. *nigronotata*, Small copper abs. *bipunctata* and *areta*.

Howard Mendel has kindly pointed out to Mike Majerus that in his article on a wasp preying on a dragonfly, this was *A. mixta*, not *cyanea*, so on page 67 and Plate S, for *Aeshna cyanea*, read *Aeshna mixta*.

In the December last issue of the *Bulletin*, mainly on page 265, amendments should be made as follows:-

In paragraph 3, whenever (Clerk) read (Clerck), also on Plates HH, II, and JJ; for *Lariniodes* read *Larinioides*, also on Plate JJ, fig. 7; On the last line of this paragraph, the comment ". . . species stretched out at rest and perhaps looking more a stick insect than a spider!" should have followed "Fig. 6. A female *Tetragnatha extensa* (L.) " and **not** Fig. 8, *Tegenaria*.

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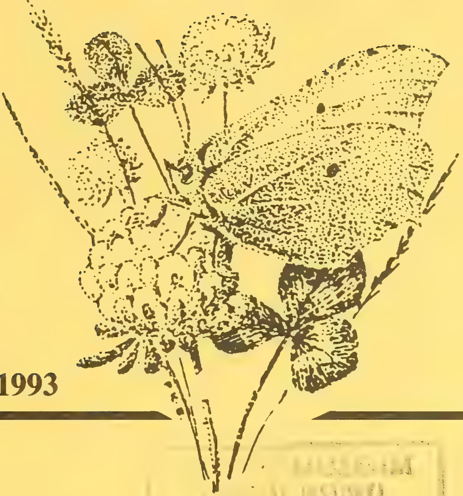

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The Bulletin of the Amateur Entomologists' Society

EDITOR
BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

The Amateur Entomologists' Society

Founded in 1935

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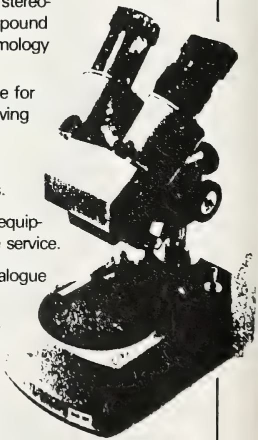

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AES BULLETIN

No. 386

THANKS FROM THE AES COUNCIL

The AES Council would like to extend its thanks to all members who have paid their subscriptions promptly — thus reducing the workload on the Registrar and making it easier to plan *Bulletin* publications.

We would also like to extend a special thanks to those who have sent donations with their subscriptions. As an Amateur Society and Registered Charity, we make every effort to keep the basic subscription rates as affordable as possible, particularly for junior members. In the past year the average cost of printing and posting the six bi-monthly *Bulletins* and the new membership list was over £10 per member — which makes the current subscription rates of £4 for UK junior members and £6 for the over 18s remarkably cheap to say the least! Whilst an increase in subscriptions in the future is inevitable, it has only been possible to keep them at such a low rate because of the generosity of past and present members in making donations, some very generous bequests from past members and the hard work put in by all the Society's voluntary helpers (see however, this month's Wants and Exchange list for a plea for more help from members to run the Society).

We would remind members that as a Registered Charity bequests to the AES are free of UK death duty — which was the major reason that Council applied for Charitable status several years ago. In addition members who are proposing to make donations in the future should note that these can be made to the Society with *"Give As You Earn"* Vouchers which are currently available via some employers (minimum donation £5 — but the cost to the donor is reduced by the tax that would otherwise be payable).

P.W. Cribb, *General Editor*

APPRECIATED

The Society extends its grateful thanks to the executors and friends of the late Mrs Frances Irene Ball (6063) who have donated funds to the Society in her memory. Mrs Ball was a regular and well-known attender at our Annual Exhibition and will be greatly missed.

FURTHER ADDITIONS TO THE ADVISORY PANEL

The following advisers have offered to advise on groups not covered in the 1992 Advisory Panel listing. Please add the particulars to your own copy.

Anoplura (Sucking lice): Dr L.A. Durden, Institute of Parasitology, Georgia Southern University, Landrum Box 8056, Statesboro, Georgia, USA.

Isopoda & Amphipoda (Woodlice, etc.): Dr L.H.R. Hamblin,
16 Shaftesbury Road, Romford, Essex RM1 2QH.

ODE TO A HOVERRFLY

by Diane A. Lavery

How beautiful the hedgerows,
How limpid blue the skies,
The weather is so perfect,
the habitat just right.
Camera ready, net in hand,
the hedgerows to peruse
In search of rare wee beasties,
that tempt one to pursue.
Yellow striped pimpernel,
airborn and fancy free
Hover here and hover there,
your ladylove to see.
You fly off at a tangent
o'er hedges, dykes, and drains,
Seeks a mate this dapper gent
in other sunlit lanes.
Careless creatures do beware,
death's the spider's saga
He who flies into her web
ends up in her larder.
Better then, come fly to me,
your likeness I'll take true,
Camera clicks, no harm is done
on film I've captured you!

Heliophilus pendulus by T.A. Lavery

ANOTHER UNUSUAL EGG-LAYING SITE FOR THE SILVER-WASHED FRITILLARY

by G.R. Smith (4950)
45 Frankland Close, Weston, Bath, Avon BA1 4EJ.

The article submitted by T.W. Smithers with regard to the unusual egg-laying site for the Silver-washed fritillary *Argynnis paphia,* which appeared in the December 1991 *Bulletin,* prompts me to comment on the discovery of an unusual technique for inducing ovipositing of this species in captivity.

For many years I have wondered why I have failed to obtain any reasonable quantities of ova from *paphia* on past occasions Despite providing potted violets and muslin as well as various types of netting hung from the top of a "Christchurch" breeding cage, the females only deposited a mere one or two ova during a remaining lifespan of over a week. However, during late August last summer, I placed a form *valezina* (in woebegone condition) in a cage, having firstly substituted the muslin for a pair of half knee length, heavily crimpled brown (flecked with white), cotton/nylon socks (clean, I think!), and suspended them, with the open end uppermost, from the top of the cage with safety pins hopefully in order to simulate tree trunks. The potted dog violet *Viola canina* and wild buddleia blooms, *Buddleia davidii,* standing in water and changed daily from then onwards, were added as on previous occasions. My wife was hanging out washing (including socks) that evening and questioned my behaviour.

The following morning, after spraying water over the contents of the cage as the weather was very warm and sunny, the female, after feeding, proceeded to select the socks for ovipositing. In fact the aged female laid about 100 ova all over the socks during a week of fine weather, including some deep inside the socks into which she must have crawled possibly to escape the fierce mid-day sunshine. In fact only two ova were on the cage netting and one on the violet plant itself. The technique was repeated using a typical female with virtually the same results.

I removed all the ova from the socks and at present (January) the larvae are all overwintering satisfactorily amongst screwed up tissue paper in plastic boxes placed within the garden shed. I tend to use plastic boxes for overwintering larvae rather than the more orthodox method involving the exposure of stock to the rigours of winter outdoors because I have experienced too many losses through predators, damp and frost in the past.

I have never witnessed such a bizarre occurrence in the wild such as Mr Smithers did that particular day. However, I have seen female *paphia* deposit on oak bark both in densely shaded areas of woodland as well as on isolated trees in direct sunight. Also females appear to oviposit readily even in cool conditions (below 20°C) such as I recall in the miserable summer of 1978.

It is probable that the butterfly Mr Smithers saw responded initially to the shape and colour of a trouser leg and then proceeded to test the texture in much the same manner as the captive insects were deceived with the deliberately chosen shape, colour and texture of the socks. Obviously the butterflies also need to be aware of the presence of their larval foodplant. In common with many other Nymphalids, *paphia* is attracted to bright colours in the hope of finding a rich nectar source. In fact a female *paphia* settled briefly on my son's football collecting cards, which he was holding whilst we were walking through a Wiltshire woodland ride.

A "RUGBY TACKLE" WITH A SMALL BLUE (*CUPIDO MINIMUS*)

by Dominic Rey (7929)

In 1987 I was working on a community project doing clearance work for the Gloucestershire Trust for Nature Conservation. I was one of the workers in one of three teams who used to look after the countryside of Gloucestershire. I was in the "A" team.

At the time, there was a colony of introduced Silver-spotted skippers (*Hesperia comma*) at large on the Cotswolds but one of the team leaders misheard somewhere along the line and thought that the species in question was the Silver-studded Blue (*Plebejus argus*). He told me that while he was in a woodland near Stroud he noticed what he thought was one of these fluttering over the grass, so he pounced on it only to find a "messed up" Small blue (*Cupido minumus*). I bet it was!

As we know, conservationists have come in for a bit of stick lately, but they're not all bad. Since coppicing was carried out by the Gloucestershire Trust for Nature Conservation at a Cotswold woodland, butterflies have moved in and settled there and other sites are looked after.

L. HUGH NEWMAN

It is with great sadness that we have to announce the death on 23rd January, just a few days short of his 84th birthday, of L. Hugh Newman.

Perhaps not so well-known to our younger members, except through his many books, he will be remembered by many of us as the proprietor of the famous Bexley Butterfly Farm; a prolific author both of books and magazine articles; a panel member of the famous BBC *Nature Parliament*; supplier of Camberwell beauties to Sir Winston Churchill for release into his garden, and of Cinnabar moths to the New Zealand Government as a biological control for the ragwort that was overrunning the sheep pastures. His final achievement, which will live on after him, was the founding of the Natural History Photographic Agency.

BUTTERFLIES IN SOUTHERN INDIA

by P.B. Hardy (9436)

10 Dudley Road, Sale, Cheshire.

An "activity holiday" company offered an inexpensive opportunity for a fortnight in November 1991 watching butterflies in southern India. The company do not allow "collecting", and only accept bookings from persons who, like myself, wish to observe and photograph butterflies in the wild, without harming them, and study their ecology and behaviour. It had been intended that some baiting with rotten fruit, and also some mercury-vapour moth-trapping, should be carried out, but owing to an unforeseen last-minute change of leader these were not possible. Whilst such artificial attractants would undoubtedly have enabled us to see considerably more species, the general opinion was that they were not missed and there were ample opportunities for rewarding study using no other equipment than our own eyes plus a camera.

The holiday was based at Calangute, a beach resort on the Indian Ocean. A wide variety of habitats was within easy walking distance. Immediately behind the village was an extensive plain, largely cultivated as rice-fields but intermixed with some salt-water swamps. To the north was a hill of the local red volcanic rock; the steep south-facing slope was well covered in climax forest; the top of the hill and the gentler northern slope were a mixture of open woodland and grassland, the latter rather desiccated as it was the dry season. To the west, the hill formed a headland jutting into the sea, providing coastal grassland, scrub and sea-cliff habitats.

On eight days, excursions were aranged for us to other habitats, including the forest wildlife sanctuaries of Bondla and Bhagwan, Dudh Sagar waterfall and a good selection of other coastal and inland sites, less important but all very rewarding for those who were prepared to search. Habitats ranged from the totally false and artificial, such as the formal church gardens in Old Goa, where the geometrical hedges of yellow Lantana attracted numbers of normally elusive Papilionids, especially the Tailed jay, and Danaids, to completely natural primary forest, where we could perhaps scramble up a rocky stream for occasional glimpses of elusive butterflies flying free, able to utilise the whole of their habitat.

There is no doubt that observation and photography of butterflies in virgin forest is very difficult, though immensely rewarding when achieved. One is forever looking for some point of attraction where the butterflies will aggregate, or at least sit still, but rarely is such found. "Mud-puddling" was not as frequent as I had hoped, though at just a few spots, particularly in the forest reserves, there were several species of Blues, especially *Nacaduba, Castalius* and *Euchrysops* sp., and Grass yellows (*Eurema* sp.) at stream sides. Elsewhere this "puddling" behaviour was observed with the Centaur oakblue, the Leaf blue, and some Nymphalids, particularly the Danaid Eggfly — surprisingly including the mimetic female; it is normally reckoned to be the males which imbibe salts from damp ground thus.

It it of course well known that forest butterflies will come into openings in the canopy, whether they be natural or man-made, such as those beneath electricity pylon wires, or forest tracks and roadsides (if not too busy), and the butterflies are clearly more apparent to our eyes in such places. For instance, the edge of the forest road at Bondla was swarming with assorted Skippers; the Plum judy (a large, tailed Riodinid) was numerous; the beautiful Tamil lacewing was readily accessible, as was the Glassy tiger; and the Pansies, especially the Chocolate, abounded in hordes. Gardens in forest clearings, with their false mixture of introduced flowers, are exploited to such an extent as to give the impression that they are "better" habitats than the forest itself. This view is in fact categorically stated by writers including Owen (1971). I believe it to be a totally false illusion created by the butterflies' greater apparency when they come into the garden. I admit, however, to at times having been glad to find such a garden, especially one in a forest clearing at Bhagwan, where a black-and-yellow Birdwing was nectaring. Even at Baga, just north of Calangute, the garden of a small restaurant was a magnet for the butterflies from the forested hillside, as well as from the more open country, including the Common mormon, Common Indian crow, and Pierids such as the Wanderer, Common jezebel, Common gull and the Emigrants.

The impressive *Euthalias* were frequently attracted to decaying organic matter. A pile of rotten oranges dumped near a restaurant proved good for the Baron (*E. aconthea*), Gaudy baron (*E. lubentina*) and Grey count (*E. (Tanaecia) lepidea*), the first and third were frequently seen elsewhere but this was the only site where I ever saw the superb *lubentina*. I wished I could find some similar attraction for *E. (Dophia) evelina,* the Red-spot duke, the "magnificent and tantalising species" described by D'Abrera (1984) as "possessed of enormous cunning and created for the express purpose of reminding lepidopterists that they are, after all, merely human". Twice I saw this species, each time utterly inaccessible!

In contrast to the large, strongly-flying forest Nymphalids, and the agile, restless Papilionids, Danaids and larger Pierids, were those species, particularly Satyrids, which sought the shade and the bases of trees and bushes. The Bushbrowns (*Mycalesis* sp.) were very numerous and easy to observe: although well camouflaged, they readily moved when disturbed, thus becoming visible, and did not fly far. What was very noticeable was that, although the dry season was two months advanced, both the heavily-ocellated, greyish-brown wet season form and the almost plain reddish-brown dry season form could be found together! There seemed to be some overlap in seasonal forms in other Satyrids with similar biology, such as the ubiquitous Four- and Five-rings, the Nigger or the Evening brown. The Psyche, a Pierid but in a different subfamily (Dismorphiinae) from the larger species, had similarly shade-loving behaviour to these browns, though it was more restless.

Lycaenids were often like flighty little jewels and no doubt I missed more of them than I identified, but some of note were the Monkey puzzle, in forests and scrub, the Common silver-line on sea-cliffs, sometimes the Common or Red pierrot, occasionally the strange, yellow, tailed Yamfly; and best of all, the magnificent and highly territorial Large oakblue, frequently found on large-leaved, ant-infested small trees on the headlands. Any grassy site would be likely to yield the small, inconspicuous Lesser and Dark grass blues; the equally tiny Grass jewel was more coastal. Other blues such as the Forget-me-not and Common caelurian were very adaptable, and also quite approachable, and were frequently found on legumes at the edges of cultivation.

One day we visited another coastal headland, dominated by an old fort. Here I first saw the Spotless grass yellow, in company with the commoner *Euremas* but distinctly different, and the Yellow pansy which was much rarer than the ubiquitous Grey, Lemon, Peacock and Chocolate pansies — those we saw every day and almost everywhere. Also at this headland, in a very restricted grass patch on a south-west facing slope, was a strong colony of the Tawny coaster, the unique Indian *Acraea*. Similar coastal sites produced the Small salmon drab.

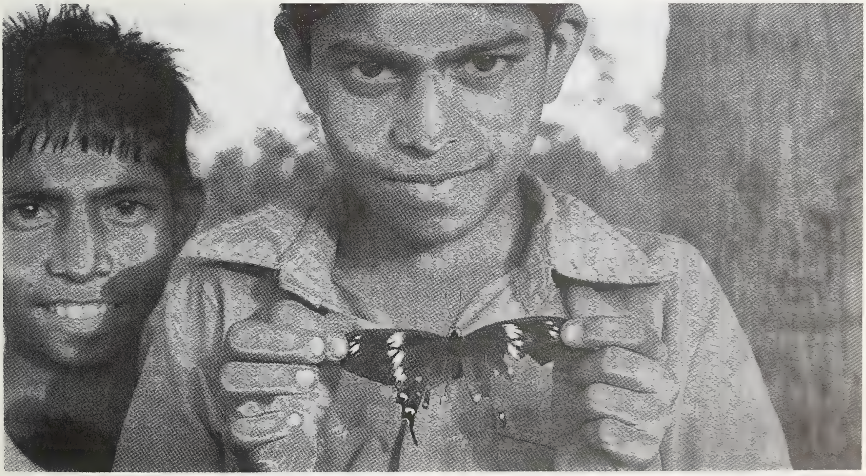

Fig. 1. Youraj and Yongesh Candolcan, the latter holding a Crimson rose (*Pachliopta hector*) butterfly.

Whilst of course the vast majority of the butterflies seen were in the wildlife sanctuaries, there were nevertheless a reasonable number of common species in and around Calangute, which were able to utilise quite marginal habitats; and on days when there was no excursion, or in the evenings, before nightfall, after we had returned from a day's outing, I spent many happy hours watching these commoner butterflies, often in company with some local boys, George and Savio Fernandes, Yeshwanth, Youngesh and Youraj Candolcan, who in common with most Indians were very friendly and welcoming, eager to help me to find and photograph the butterflies, to look at the plates in my field guides showing the species which I had seen, and even to learn a little about their biology. Fig. 1 shows Yougesh holding a Crimson rose butterfly, his brother beside him.

The holiday was a good example of benign wildlife tourism, in an area where mankind and Nature, including Lepidoptera, have not yet got beyond the ability to exist in harmony. In the resort itself, however, the mark of western intensive tourism and commercialism was very apparent. More buildings were going up even then along the lane where the boys lived and they told me that it was planned to build over the field where they played cricket. It is so easy for "development" and exploitation to completely ruin the character of an area. We should all be careful that our activities do not condone such damage, either to the wildlife or to the local human population.

REFERENCES

D'Abrera, B. (1984). *Butterflies of the Oriental Region*. Hill House, Melbourne.
Owen, D.F. (1971). *Tropical Butterflies*. Oxford University Press, London.

SPECIES LIST

Troides minos	Indian birdwing
Pachliopta aristolochiae	Common rose
P. hector	Crimson rose
Papilio polytes	Common mormon
P. polymnestor	Blue mormon
P. helenus	Red helen
P. demoleus	Lime
Graphium agamemnon	Tailed jay
G. doson	Common jay
G. sarpedon	Common bluebottle
Leptosia nina	Psyche
Catopsilia pomona	Lemon emigrant
C. pyranthe	Mottled emigrant
Cepora nerissa	Common gull
Pareronia valeria	Wanderer
Hebomoia glaucippe	Great orange-tip
Eurema brigitta	Small grass yellow
E. hecabe	Three-spot grass yellow
E. blanda	Spotless grass yellow

E. laeta	
E. andersoni	Small salmon Arab
Colotis amata	Common jezebel
Danaus genutia	Common tiger
D. chrysippus	Plain tiger
Tirumala limniace	Blue tiger
Parantica aglea	Glassy tiger
Idea malabarica	Tree nymph
Euploea core	Common Indian crow
Acraea violae	Tawny coster
Cethosia nietneri	Tamil lacewing
Ariadne ariadne	Angled castor
A. merione	Common castor
Vindula erota	Cruiser
Cupha erymanthis	Rustic
Phalanta phalantha	Indian leopard
Junonia atlites	Grey pansy
J. almana	Peacock pansy
Junonia lemonias	Lemon pansy
J. iphita	Chocolate pansy
J. hierta	Yellow pansy
Neptis hylas	Common sailor
N. (jumbah?)	
Pantoporia sandaka	
Moduza procris	Commander
Euthalia aconthea	Baron
E. lubentina	Gaudy baron
Tanaecia lepidea	Grey count
Dolphla evelina	Red-spot duke
Hypolimnas bolina	Great eggfly
H. misippus	Danaid eggfly
Doleschallia bisaltide	Autumn leaf
Parthenos sylvia	Clipper
Ypthima huebneri	Common four-ring
Y. baldus	Common five-ring
Mycalesis perseus	Common bushbrown
M. mineus	Dark-brand bushbrown
M. visala	Long-brand bushbrown
M. patnia	Glad-eye bushbrown
Orsotriaena medus	Nigger
Lethe rohria	Common treebrown
Melanitis leda	Common evening brown
Abisara echerius	Plum judy
Zizzina otis	Lesser grass blue
Zizula hylax	Tiny grass blue
Zizeeria karsandra	Dark grass blue
Freyeria trochylus	Grass jewel
Euchrysops cnejus	Gram blue
Chilades pandava	Plains cupid
Catochrysops strabo	Forget-me-not
Lampides boeticus	Pea blue
Jamides celeno	Common caelurian
Deudorix epijarbas	Cornelian
Talicada nyseus	Red pierrot

Castalius rosimon	Common pierrot
C. caleta	Angled pierrot
Syntarucus plinius	Zebra blue
Nacaduba kurava	Transparent 6-line blue
N. berenice	Rounded 6-line blue
N. pactolus	Large 4-line blue
Arhopala amantes	Large oakblue
Arhopala pseudocentaurus	Centaur oakblue
Amblypodia anita	Leafblue
Spindasis vulcanus	Common silver-line
Rathinda amor	Monkey puzzle
Loxura atymnus	Yamfly
Tagiades gana	Large snow flat
Caprona ransonnetti	Golden angle
Saustus gremius	Indian palm bob
Notocrypta paralysos	Common banded demon
Spialia galba	Indian skipper
Pelopidas mathias	Small branded swift
Potanthus confucius	
Ampittia dioscorides	Bush hopper
Iambrix salsala	Chestnut bob
Halpe (zema?)	(Banded?) ace
Borbo cinnara	Formosan swift

DOWN THE TUAK ROAD

by Leigh Plester (2968)

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(Continued from Vol. 50, page 253)

(Illustrations to this article are to be found on colour plates O and P.)

Editor's note: In the previous episode the second line of the final paragraph was lost off the page. The paragraph should have read thus:

Ask me, however, what most impressed me about Bako and I have to say: *Thaumantis noureddin*. This dark brown butterfly appeared only rarely in the late afternoon, where it flitted from shadow to shadow in the undergrowth, searchlights of sunshine picking out the midnight blue pools on its sombre wings. For me it was the epitome of the primary rainforest.

"No visit to Sarawak is complete without a journey down the Rajang, the country's largest river," say the guide books, or thereabouts. To be sure, the trip down the Rajang is fascinating, if you like your river banks to appear as thin green lines several hundred metres away, your preference is for hard metal tubing seats, you like having your nose-in-notes attention distracted by Kung Fu videos in the air con typhoon circulating through a modern express launch, you have suicidal tendencies when you go out on deck, and you love wasting a day that could have been better spent chasing female Rajah Brookes . . . .

But we were en route for Kapit, "the metropolis" of the middle Ragang, and the world looked so could-the-guidebooks-have-been-right different that it was a journey to end all other journeys, a downslide to a death in a creeper festooned jungle flutter-brushed by velvet black and green and gold birdwings. The whole hog of bristles swept the earth and here is Singalang Burong, the bird god of the Iban, flat-palming with secondaries skipslap his muddy water rushing past . . . and I awoke somewhere midtrips realising I had dose-dreamed and went to the stern through the engine room where a young oil-stained Iban sat reading an oil-stained comic. The noise was stone deafening. I found Nick soul-alone out on the tiny diesel launch passenger deck rush-wind. He raised his head and his John Wayne cap flew off, never to be seen again, drowned in the mighty Rajang. ". . . thump of diesels and Kung Fu video?" I asked. "Kapit," he said, and something else, but the avaricious wind took it.

In the evening calm we drew in at a concrete wharf. Stephen came down the aisle recently vacated by Iban in trousers and pressed shirts oh-so-neat and conferred. A rundown taxi took us under his Cantonese direction to a Chinese rundown hotel. Having signed "the book" we went upstairs. It was the Kapit Longhouse Hotel. I stress this, because most likely you have never heard of it and will thus have difficulty remembering it, should you ever wish to do so. And what a room view of the river! The windows were not barred with prison bars but barred with wrought iron in a no-glass fashion. No way in, no way out for anything with less than six feet. Admirable. There were neon lights a-ceiling and a cupboard in which mould lurked waiting for a chance to pounce on your damp European rundown clothing.

Happily there were also insects in the woodwork. To justify, Stephen was back within minutes, holding up a piece of stained blue cloth with the bouquet of a Neanderthal cesspit — Nick's shorts. Raija, my (Finnish) wife, was in our bathroom without-wear and thus not to be decently on-site. "Fascinating, Stephen," I said, my mind on a shower, if possible with the hot-blooded Memsahib, if not someone browner still down the hall, "but erm . . . ?" "Killing bottle!" he commanded, hair-skew. As a gas chamber his exhibit looked a particularly snazzy prototype, if lethal, but then in a rare moment of lucidity I found myself producing a proper ethyl acetate edition, embarass-grin over the fumes.

Stephen did a magician's trick in Nick's shorts, whereupon a whiffle-feeler cockroach shot out and did a wall of death around the jar before throwing up a platoon of feet and twitching to a stop. "Good grief," I said, "Five minutes and they've got to him!" The Chinese are not noted for displays of over-emotion, but Stephen went out decidedly shake-mirth.

The rest of the party quickly lost favour with us by moving out of the atmospheric "Kapit Longhouse" into a sterile new hotel street-aways. This had air con but lacked creepies; to Raija and myself it became a no-go area. We slept steeped in bizarre species every night until cock-crow.

Ricketty bridge, platoon of froggies in (believe it or not) a genuine fog, pop-out pop-in traders, and neon lamps up pale walls over awnings and athrob with insects small-small fry and the occasional grotesque-shadow hawkmoth, "kumbung kabai" (cockchafer), or spiny beetle; rumble-voices from billiards hall; piercing shriek of Chinese dialect tumbling down illuminated shafts in dark-street inky-blackness; a hand raised in pass-you greeting from a group of young Iban, and the sudden flood of light that marked the end of the line of street lamps and the beginning of a row of fascinating shops and — slightly beyond — a Chinese cafe serving Chinese food and beer in combinations that lingered on the palate for hours during "lamping" (see below) and afterwards-sleep. A journey of just a couple of hundred yards from hotel to eating place, but a walk fraught with tropic night true velvet feeling, not to mention a long lit corridor nightmare for those who abhor chitinous cling-claw and twitch-limb. Of which the latter we — bug lovers to the core, like you — were none.

Many Sarawakian restaurants are open-fronted and even open-sided and this one was no exception. The cook was barely visible behind a fountain of steam and it seemed that all the culinary odours of the Orient had been pulled in under one roof. For breakfast (which we ate nearer to the hotel) Stephen would stick rigidly to his mee — spaghetti that's had a tough childhood and has consequently ended up wiry and slightly sinister looking. In the evening he tended to study menus purse-lip. But both Raija and her friend Seija are noted gourmets, Nick in "civilised" circumastances is of their ilk, and I myself am partial to a good meal although I can survive just as well on Iban hill rice and monitor lizard soufflé should the need arise. When the gourmets made it known that they were on holiday and would like the best, the Chinese got to work and the meals got better and better, also more pricey as time went on, but with the first meal costing only around £12 for the five of us, including "The Flood" reincarnated as beer, even Stephen didn't complain.

A thunderstorm taking us by surprise at 8pm, falling slantwise out of the inky heavens, we sat and had a further beer. As I said, the Rajang trip is a "must" and Kapit is its metropolis. Over the days and evenings Nick tended to collect "putih" (whitemen) off the street for purposes of conversation and you could always see that glow of pride and wonderment in their faces that after months of planning they had finally got here. Some went upriver to Belaga as soon as poss, but Kapit was an endpoint in itself, the last trading post, so to speak, before the jungle swallowed one up.

And incredibly it had a Finn — the only resident Finn in Sarawak, in fact. Right here-town. This unlikely piece of information was imparted a couple of weeks before at Kuching airport by a young Iban who was standing next to Nick as the luggage came out of the mincer.

After a day's hard work with the Bolexes, in the heat, sweat-shirt, glad of rain forest shade after dark river sunbeam silver glance-off, and spits of desert sand in midcurrent, sand white hot to white foot; after the labelling of the exposed film cans and the cleaning of the precious equipment; after the fine meal and the cold beers abead-dew; after desultory conversation. After all this — designed to erode the sands of evening towards sleep — there would come the familiar wish to be a machine that could be turned off and restarted next morning when the tropical sun stirred. In short, I was bored stiff by eight or nine o'clock each evening.

The remedy came in the form of "lamping". I don't remember who tumbled to it, as it was there all the time staring us bugwumpers in the face. But after the first evening Stephen would soft-knock into our room and ask, "Leigh, what about lamping?" And my petite Memsahib, bless her, would unfold the butterfly net as I poured ethyl acetate onto Double Happiness serviettes laid in a huge plastic container I'd bought from the shop downstairs, and we'd furtive ourselves out of the Kapit Longhouse Hotel and do a round of the lamps.

Kapit street lamps were veiled by shifting contingents of gnats and the nasty bees the Iban seem to call "gawai" — but that means "festival", so I must have heard wrong, even when the Memsahib got painfully stung by one a year later in a longhouse we stayed in deep in the jungle and they had to put a rain forest poultice on it. But even with Stephen's "lady boss's" insect pins, ethyl acetate and collecting tubes, I could not bring myself to collect either gnats or lethal bees. For was I not, bolstered by Tiger beer, Le Plesteire du Kapit? So we deliberately searched for less motley fare.

The first lay on his back, legs kicking wildly, a horn on his thorax thrust beligerently forward, bifid in a rude gesture — a most indignant polished mahogany gentleman a good 7cm in length. His forelegs projected well beyond his snout and the rest of his ambulatory appendages were spaced out with no regard for storeboxes. Moreover, he had hooks on his feet that looked like veterans from the Cod War. All in all the sort of exhibit you "spread" rather than "set". During the minutes it took me to persuade the beetle (presumably a *Xylotrupes*) to let go of my finger, much of our ethyl acetate evaporated, a source of vast merriment among the hawkmoths later on. They used the last drop to Aerobic away their scales before succumbing. Any of you out there good at classifying naked hawks?

Sarawak cockchafers from Kuching to Kapit are muddy brown speckled with white and like cockchafers in general are happiest when blundering into lamps. Some spend a while revolving on their backs on the road, trying to get a toe hold, but once they get one they generally clamber up into the night to repeat the process. Beats me why they bother.

Several species of hawkmoth came our way and, had we not been exhausted by eleven o'clock or so, we should doubtless have bagged others. They came in all shapes and sizes, a fairly common type being *Daphnis hypothous,* a greenish relative of the Oleander hawk marked like an Egyptian sarcophagus. A couple of uncatchable grey ones looked like the long lost kin of the Convolvulus hawk. Altogether they were a homely bunch.

Surprisingly there were not many geometers and noctuids and the few that were glimped in flight were inevitably snapped up by bats as we struggled to hoist the kite net high enough. It took me only one evening to discover that under the slim-tall street lamps of Kapit a net with the "regulation nine-inch handle, sah!" was as useless as the woman and the whisky bottle down in Hell (a dirty joke Brian would be sure to scrub if I dared include it!). Stephen apparently filed my complaint in his memory in his hands-on fashion, for the next day near where the Rajang divides off from the Baleh he ordered our boatman to put in to shore, where we hacked off a lengthy bamboo with my jungle knife. This gave us height, but it would have been slightly more manoevrable attached to the turret of a ten-ton tank and armed with radar. The bats laughed at it as they swooped into the limelight snapping up our Borneo prizes with shrill twitters of glee.

Insectivorous bats did not, however, share our dessert. This latter was *Urania fulgens,* one of the Heavenly moths, spanning more than ten centimetres. It had huge caudal tails on its hindwings that were preceded by shorter, sharper, spur-like projections. The entire moth was dark chocolate brown, narrowly slashed with cream on each wing. As I said before, a confectionery moth. There was a fun fair in full swing on the evenings when we were at Kapit and as we returned from lamping in the dark behind the pools cast by street lamps, the lit-up sky emerged and there was the rhythmic thumping that nowadays signifies either war or human fun. The whole caboodle was surrounded by a high wooden stockade that old Rajah Brooke would have envied, and on its front, next to a street lamp bordering the gate, sat a moth of this species in pristine condition. Needless to say, it did not sit there for long. It was delicious, although I did find the body a trifle hairy when going down the gullet.

There's a Finnish joke that is a collector's item because it's clean. A drunken gypsy getting into a Mercedes taxi asked the driver what the three-pointed-star-in-the-circle insignia on the bonnet meant. To humour him the taxi driver explained it was his gun sights, for use when clobbering pedestrians. To humour him further, the taxi driver deliberately drove towards an old dear on the next pedestrian crossing, deftly swerving at the last moment. Whereupon there was a resounding crash followed by a waft of fermenting breath at his right ear. "It's alright, guv, you missed — but I got her wiv me door!"chortled the gypsy.

A specimen we picked up in the road on the hill going out of Kapit was the old lady of this joke. Moreover, it was just the shape and pattern of the Old Lady moth, if a bit bigger. Upon relaxing the specimen, now measuring about six feet by ten, I pushed a pin through what was left of its thorax — and came up with a do-it-yourself Borneo Old Lady kit. Its wings showered down like autumn leaves. The legs just need a spot of glue and about three weeks of winter evenings.

A much larger specimen cast in the same mould, beautifully patterned in ruddy shades, I espied stuck fast in a cobweb in the window of the gents' at Stephen's Department of Agriculture at Semmengoh, near Kuching. The body of this unfortunate had been consumed by pests and, with a pin through what's left, the corpse turns through forty degrees every time I open the storebox. I mention these variation on the pristine pinned specimen theme in case you ever come across a collection somebody has brought back from the tropics and are inclined to sneer at its condition. Out there it's not Hampstead Heath on a June evening, Old Boy; far from it, doncherknow — there it's every wing for itself.

For the bughunter the chief attraction of Kapit "lamping" must be the cicadas. Aside from the normal small pale green ones, there are several species going up by degrees to the magnificent Queen cicada, which has a body like a fat mouse and a wingspan of 18cm — this is no exaggeration, as I've just gone and measured my one set specimen, the others being fold-up wing to save space. The awe this kicking, clicking beast inspires even when dried to a husk can be imagined from the fact that visitors to our museum (log house) inevitably gravitate towards the display case housing my handful. To add spice to the continuum of brown and transparent kinds, a jet black *Tacua speciosa* with a yellow collar, a red band behind the thorax, and a yellow belt across its abdomen, would soon hove into view on the upwinding road. With a wingspan of 14cm and a mien as black as the next budget, this species conveys the exotic atmosphere of being in South-east Asia.

People (especially Finns, who seem to fear everything except thirty degree frosts and souped-up rally cars) often ask me isn't it dangerous down near the Equator? I can honestly say I've rarely found it so. On 4th May in the dark we were ambling up the hill out of town once again and to launch the exception to the rule, I took off my sandals and climbed up onto Nick's shoulders the better to reach a superb narrow-winged pink and grey hawkmoth that was a feature of the landscape as it sat transfixed on one of the soaring concrete lamp standards. Spying our bamboo contraption, the moth took off, never to be seen again. I cursed like a Liverpudlian docker — "Oh dear!" — before belaying down Nick, foam-lipped and sweating. "Good grief," said my support, "What's that?" I gazed frostily at the thing in the grass (awful pun under the circumstances). "Mouse, no it's a vole, I mean a mantis of some sort . . ."

Recognition! "Scorpions come in pairs!" I thought in a panic, bellowing for the Memsahib, who was mothing or cicada-ing or gnat-batting with Stephen and had my sandals. Nuryev was nowhere in it. I cleared several yards of grass, in the dark, on my toe nails.Without violins. We eventually scooped the scorpion — a polished brown fellow about 10cm in length, excluding his sting, which waved about threateningly, and a pair of nippers that feinted right and left — into a spare can, since naturally Nick wanted to take him home. Nick is a great ideas man but a poor follower through; where you or I would die of thirst rather than abandon a specimen in the Sahara desert, Nick would gladly dump a "gynandro" *alexandrae* for a hot pint of brown.

And so it came to pass that the scorpion lived in a biscuit tin under my bed in Kuching and after at Bako National Park, while my Memsahib, used to my wild ways, slept perfectly happily in her own bed just a metre away (it's the heat, you know). In the end I had to "put the scorpion down" and now its dessicated remains are at Nick's place in Finland and I hope he uses its tail one day to dig out a deep splinter.

(to be concluded)

JOURNALS FOR SALE — BY THE 100

Besides the usual fine selection of antiquarian and recent entomological books, Catalogue 54 from Dieter Schierenberg, Prinsengracht 485-487, 1016 HP Amsterdam, Netherlands (telephone (they speak English!) 010-31-2020 6225730 or fax -6265650), offers over 700 journals for sale, many in complete runs including one of the AES *Bulletin* as well as *The Entomologist, The Entomologist's Record, The Entomologist's Gazette,* etc, etc. Part runs and odd volumes are also available. In spite of our devalued pound many prices seemed reasonable, although new books in particular are clearly dearer in the Netherlands than they are here.

OBSERVATIONS ON *PAPILIO PALINURUS* (GREEN-BARRED SWALLOWTAIL)

by John Gregory (4116)

Lepidoptera House, Bodelva, Par, Cornwall.

Several batches of chrysalids of the Green-barred swallowtail (*Papilio palinurus*), which were received by John Sweet for the "Butterfly House" section of his Plant Centre business at Par, Cornwall, were kept under observation during 1991. Most of these chrysalids were some shade of green, although a few were brown or brownish-grey. The green ones had a contrasting white dorsal stripe, while the corresponding stripe on the brown forms was dark-edged and pale brown. In shape and size the chrysalids of this species resemble some of the well-known *Citrus*-feeding species of the genus, being rather broad in the middle. They are shown on Plate N, Fig. 4.

As in most butterfly species, the forewing colours and markings become clearly visible through the skin of the chrysalis a few hours before emergence of the adult, the wings of this species showing up as black with a broad orangy-brown fascia. The freshly emerged butterfly has bronzy-black wings which are liberally sprinkled with brownish-orange scales, especially in the basal area, and the broad fasciae of the same colour are paler at the costa.

As the wings expand, a remarkable colour-change occurs, commencing with the costal end of the orange fasciae which gradually turn brilliant green, soon to be followed by the remainder of the fasciae and the orange sprinkling of scales which also become green (Plate N, Fig.3).

When fully expanded, the colour-transformation is complete. On the upperside all four wings are blackish with a broad brilliant green fascia and green scale-sprinklings in the basal area. In fact all the former brownish-orange colour, except for the edging of a small white spot on the costa of the hindwing, is now replaced by green. The underside is blackish with a large area of grey on the outer part of the forewing. On some specimens the lunules towards the outer edge of the hindwing are reddish-brown with only a few scattered bluish-green scales. (Strange that these lunules do not also turn green, but these are more reddish than orange.)

To ascertain whether moisture would have any effect on the green colour, a dead butterfly was thoroughly drenched with water, but the green colour remained intact with no tendency at all towards any reversion to the original orange colour.

Some of the questions which now arise are:-

(a) What actually happens to each individual scale of the expanding wings to cause the colour-change?

(b) Does this precise phenomenon occur in any other species?
(c) What survival benefit (if any) does it confer on the species as a whole in its natural environment?

Very little information about *P. palinurus* is given in any of the readily-available butterfly text-books. Such biological information as foodplant preference, description of the larva and number of generations per year seems to be lacking from the literature, although the species is known to have a wide distribution from Burma to the Phillippines.

LARGE WHITE BUTTERFLY LARVAE FEEDING IN WINTER

by Owen Lewis (8132)

The note by N. Butt (*Bulletin* **51**: 383) about overwintering larvae of the Large white (*Pieris brassicae*) reminded me of my own observations on larvae of the same species during the previous winter.

On Christmas Day 1990, a group of ten larvae were feeding on purple sprouting broccoli in my parents' garden in Bridgend, Mid-Glamorgan. At least one survived until 3rd February 1991, and had reached its final instar, having endured sub-zero temperatures and a five-inch fall of snow at the end of January. It finally succumbed to a second cold spell during 6th-10th February, and was found dead on the ground.

The 1990-91 winter was much more severe than that of 1991-92, at least in South Wales, but early March sightings of an adult Large white from Surrey in 1991 (*Butterfly Conservation News* **49**: 253) could suggest that at least one hardy larva survived the winter. (Unlikely: more probably an early emergence from a chrysalis.— Editor.)

BOOK REVIEW

Classification and ranking of water beetle communities by G.N. Foster & M.D. Eyre. Pp.110. UK Nature Series. Price not given.

This is a very useful publication, especially for those entomologists involved in ecological surveying.

The report goes into detail of site evaluation using water beetles with computer analysis. There are the summaries of a series of regional surveys (Southern Scotland, North-east England, Wales, the Midlands, Lincolnshire and northern East Anglia, the South-west and Southern England and the Weald) which comprises of some 2,102 individual sites.

There is also a checklist of all the British water beetles and their relative abundance (ie their Invertebrate Site Register status).

COLLECTING IN ARIZONA

by Charles L. Young (5045)

65 Dudley Lane, Madison, CT 06443, USA.

Robber flies (Asilidae) belong to that huge group of insects, the Diptera, or true two-winged flies. They are vicious creatures, the jaguars of the fly world, actively seeking out and preying on other insects. Often while in flight! Outfitted with large, stout and grasping spiny legs, robber flies manipulate their prey with a long, sharp, knife-like proboscis, impaling and sucking dry their victims' body fluids. The robber fly family includes 883 species in the United States and Canada and approximately 5,000 species worldwide.

In the beginning of June 1991, I was on my way to the south-western Research Station in Portal, Arizona to attend the second annual North American Dipterists' Society meeting. As asilids are very fond of arid and hot open areas this gave me an excellent opportunity to do some collecting in the south-eastern part of that western state and compile the following:

31st May. Heading south-east on Route 186 from the busy Tucson area, the Chiricahua mountain range looks up from the flat, dry, fenced-in pastures that typify most of Arizona's grasslands. Leaving Chiricahua's National Monument (with its incredibly picturesque rock formations created by volcanic ash) off to my left, I drove down the rough dirt Pinery Canyon road towards Coronado National Forest. Shortly before entering the enclosing green of the approaching forest, I stopped by a small hill covered with knee-high, dried-out weeds and grasses, boulders and an occasional agave plant (*Agave palmeri*). At an elevation of 5,260 ft. the temperature was a comfortable 85°F. with a stiff, arid wind blowing. Collecting throughout this area I was able to net a species of the genus *Efferia* (Asilinae) as it clung to a rock in the strong breeze. Further up the steep incline I spotted and took a larger robber fly, *Promachus* sp. (Asilinae), as it also anchored itself to a rock surface avoiding the strong wind. This male specimen was large, by asilid standards, measuring 26mm in length with the last abdominal tergite covered in a silvery pile.

Driving further up the canyon road the elevation rose and the brown and grey lowlands soon gave way to increasingly greener trees and shrubs. This was the pinyon-juniper belt that separates the low-lying dry pasture lands from the higher forests. Small streams flow throughout the area and an occasional startled white-tailed deer would bolt from its drinking spot as I drove past, raising a cloud of dust from the unpaved road as I made my way up the winding mountain road.

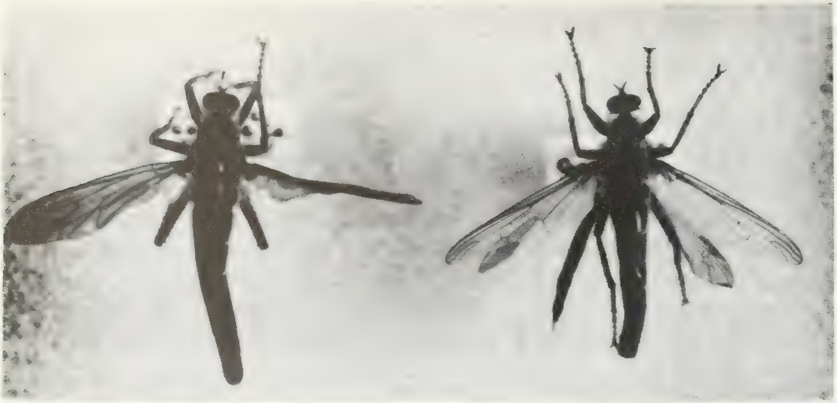


Fig. 1. A pair of *Stenopogon* species: that on the right having been taken while feeding on Tipulidae.

At 7,000 ft. the terrain became somewhat more open, giving way to emory oaks (*Quercus emoryi*), alligator junipers (*Juniperus deppeana*) and various different pines. From the car window I spotted what appeared to be a rather large asilid making a capture dart after some prey. Stopping, I approached the area and spied the robber fly resting on a rock as it fed on a crane fly (Tipulidae). This was an exceptionally attractive fly of the sub-family Dasupogoninae (*Stenopogon* sp.). Its large body, 33mm, a deep amber, extended down to its powerful, grasping legs. In the short span of about an hour I was able to capture three females and two males of this species as they were abundant at that elevation and environment. These asilids were very wary prey and netting them took much patience and care. (Illustrated in Fig. 1.)

1st June. I left the research station at 6am; drove through Portal to a lower elevation of about 4,800 ft. The mountain sides levelled off to gradually sloping flat lands covered with small boulders and dotted with sagebush. I turned off the main road and stopped at a narrow dried up river bed strewn with pebbles and lined with mesquite, sagebrush and other low-growing prickly shrubs. Immediately I netted a tiny grey and black asilid, *Stichopogon trifasciatus,* as it warmed itself in the rising sun. Working my way up the river bed the early morning chill gave way to warmer temperatures and robber fly activity increased.

In this area I took many species of *Efferia,* a very large group of robber flies consisting of about 107 species. These are very small to moderately large flies, most often a dull grey colour which enables them to blend in with their environment. Among the small boulders and sand I captured ten of these flies, mostly females. Further up the bed another *Promachus* sp. was taken, similar to the one collected earlier, as well as a specimen of *Philonicus* sp. (Asilinae). There were many whip tailed lizards sunning themselves throughout the area and as noon approached the temperature climbed into the nineties and many desert cicadas started their boisterous symphony.

On my way back down the sandy river bed I was pleased to collect five specimens of the Apioceridae. This family is closely related to robber flies and the similarity is striking. Their body shape and coloration is so close to that of asilids that I at first mistook them for a species of *Efferia*. I believe these specimens were *Apiocera hauruspex*.

Returning to the research station that evening Dr Stephen Bullington, an authority on asilids, showed me some extremely large and bulky robber flies he had collected from the surrounding Chiricahua area. These flies were huge specimens of *Promachus giganteus* (rightfully named!), measuring 40 - 43mm in length. Their powerful thorax was light grey with a fine streak of red and, as with the smaller *Promachus* species, the last abdominal tergite in the males was covered with a whitish, silvery pile. We decided to return to the location where he had collected the preceding morning and try our luck (I was extremely enthusiastic about obtaining some of these giant robber flies!).

2nd June. Passing by where I had been collecting the previous day, we drove down the dusty, unpaved San Simone road for about five miles to where Stephen had taken the *P. giganteus* specimens. The area was flat desert that sharply rose into boulder strewn foothills. The vegetation on the lower areas consisted of yuccas (*Yucca arizonica*), agave (*Agave palmeri*), ocotillo (*Fouquieria splendens*), mesquite (*Prosopis velutina*), pricklypear cactus (*Opuntia phaeacantha*) and the occasional organ pipe cactus (*Stenocereus thurberi*). Quail were abundant in the area and I spotted several as they quickly ran through the low brush, escaping our advance. Stephen and I split up, he sticking to lower ground while I headed up into the foothills. I soon found and followed a dried out wash with a fine sandy floor. This typical fly territory is shown on Plate M, Fig. 1.

As I warily moved up the river bed a family of four black-tailed jack rabbits hopped across my path, occasionally stopping to prick up their long ears. Many *Efferia* were foraging in this area and I took two very tiny specimens of this genus as they perched on small rocks. Along the lip of the river bed I was particularly pleased to take a specimen of *Ospriocerus* sp. (*Stenopogon*). This was a beautifully-coloured asilid, covered in black with a bright orange abdomen, a pleasant departure from the more common dull grey and brown colours exhibited by most robber flies. Following the rocky river bank I spied the prize we had been seeking, a male *P. giganteus* warily sunning itself on a sharply angled rock while awaiting passing prey. Cautiously approaching my victim

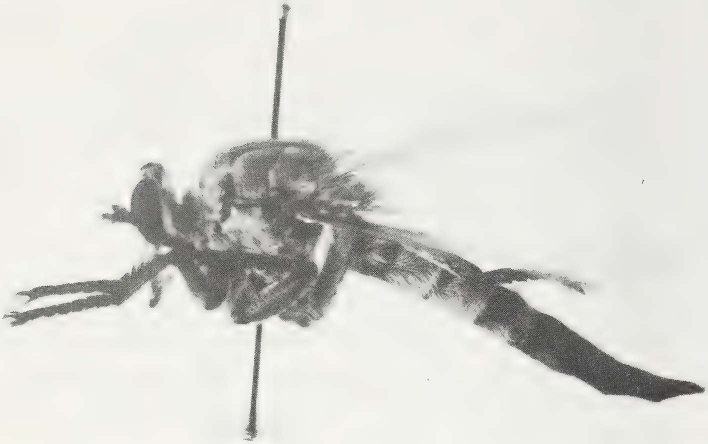


Fig. 2. Lateral view of *Promachus giganteus* female.

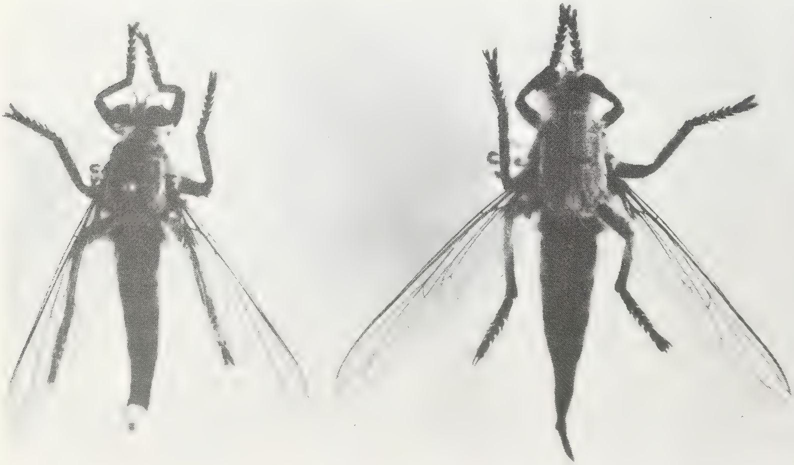


Fig. 3. *Promachus giganteus,* male left; female right. Note the powerful spiny legs used for grasping prey. This pair was taken *in cop.*

(they are very quick to escape) I managed to net the monster, my heart pounding with excitement as this was the largest asilid I had ever taken. During the course of that day I was able to net four more of these giants, one pair in copulation. Lateral and dorsal views of this fly are shown in Figs. 2 and 3.

As I slowly made my way back, a loud buzzing noise caught my attention. There, on a thorny ocotillo plant a large cicada had somehow impaled its thorax on one of the plant's long spikes and was beating its wings, vainly trying to escape. Further along my path I encountered a giant millipede as it swiftly moved across the desert floor in search of shade. A large, black and yellow velvet ant (Mutillidae) scurried over rocks, also avoiding the rising temperatures. Ascending back into the foothills, I took a small, tan robber fly, *Scleropogon* sp. (*Stenopogon*) that I had never seen before. That day I collected a further fifteen asilids, representing five different species.

3rd June. As the Dipterists' meeting in Portal wound down to a close it was time to leave Arizona and head back towards the north-east. The Chiricahua mountain range is an ideal collecting area during the spring months. Its diverse environments (from Alpine to desert) offer a wide range of habitats that any insect collector would appreciate. During my short stay I was able to collect 46 asilids, representing six different genera; 26 individual species.

RED ADMIRALS AND HORNETS

by Michael E.N. Majerus (4027)

To add to the correspondence on the interactions between these two species (*Bulletin* **50**: 280; **51**: 162), I mention a recent observation where they appeared to be competing for food. At a sap slick, coming from a wound in a mature oak tree trunk, several (maximum six) Red admirals, the occasional Speckled wood and one Comma, were seen assembling to feed on several days in early August 1992. On two occasions hornets were also in attendance disturbing the butterflies and actively chasing them away, often following for several metres before returning to the tree. The hornets also fed on the sap, up to a dozen eating at a time with several more on the wing, keeping the butterflies at bay. The hornets took no notice of the many flies that were also attracted to the sap.

It is not possible to say whether the hornets were trying to catch the butterflies. I suspect that had they done so, they would have eaten the corpse, but no captures were seen. I was somewhat surprised that on several days when the butterflies were seen feeding, no hornets were evident at all. Do hornets forage for food in different sectors around their nests on different days?

These observations were made between 7th - 12th August 1992, on the Darlington Estate, near Totnes, Devon. It may be of interest that late on the afternoon of 9th August, a Jersey tigermoth was also seen at the sap slick with the Red admirals.

INSECT FOOD OF BLUE TITS IN WINTER

by Harry E.M. Dott (7934)

70 Findhorn Place, Edinburgh EH9 2NW.

It is known that small birds such as blue tits (*Parus caeruleus*) which remain in Britain throughout the year rather than migrate, must be resourceful in finding food in winter in order to survive.

On 17th November 1991, on a cold day with ice on water, I watched three blue tits busily feeding in small willow bushes *Salix* sp. (probably goat willow, *S. caprea*) at the water's edge of a reservoir close to Edinburgh, Scotland. The willows were entirely bare of their leaves. I noted that the tits pecked only at the buds, and at certain ones they would stop and destroy the bud.

I approached and inspected the precise twigs where the birds had been feeding. The buds on the twigs tended to be of two sizes, smaller or larger, and the smaller buds appeared to be untouched by the tits. Some of the larger buds showed insect exit holes, and contained only empty space inside. Others of the larger buds were freshly pecked open by the birds, with green sappy tissue showing and most of the bud gone. Most of these buds appeared to have contained insects, indicated either by remains of what appeared to be black pupae cases (one per bud) in some, and traces of black frass in others.

Thus it appeared that the larger buds contained either live stages of insects or had contained insects previously, and the larger bud size may have been due to the insect activity. The tits appeared to have discovered how to find this hidden source of insect food.

I wonder if any readers have knowledge of what type of insects might have been living in these willow buds? I would be most interested to know to what group the insect would most likely belong, even if only to the level of a major group such as Coleoptera, Diptera, or other. On other occasions in Scotland, I myself have noted large numbers of Chrysomelidae and less often Curculionidae on goat willows in summer with the majority of leaves destroyed presumably by their activity. Equally, if any reader knows of any bird-insect relationship similar to the above I would be delighted to hear of this.

HOVERFLY RECORDS WANTED

I am in the course of compiling an illustrated guide to European hoverflies. I should be most grateful for species lists of collections, both in Museums and in private collections. Records with location, date, altitude and name of observer are requested. Please write to Wolfgang G. Kantner, Schoenbichlweg 26, A-6380 Sankt Johann, Austria.

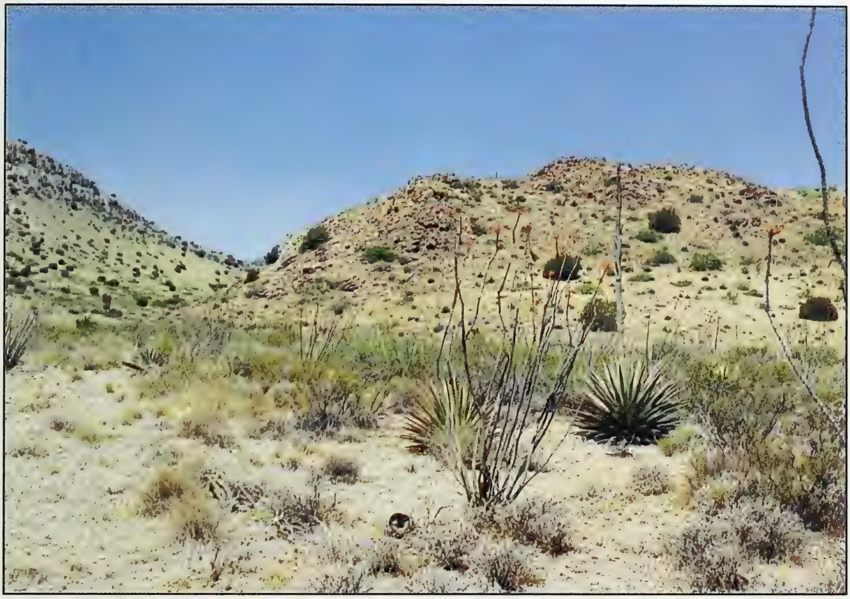


Fig. 1. Rich robber fly territory where *P. giganteus* and many *Efferia* species were taken.

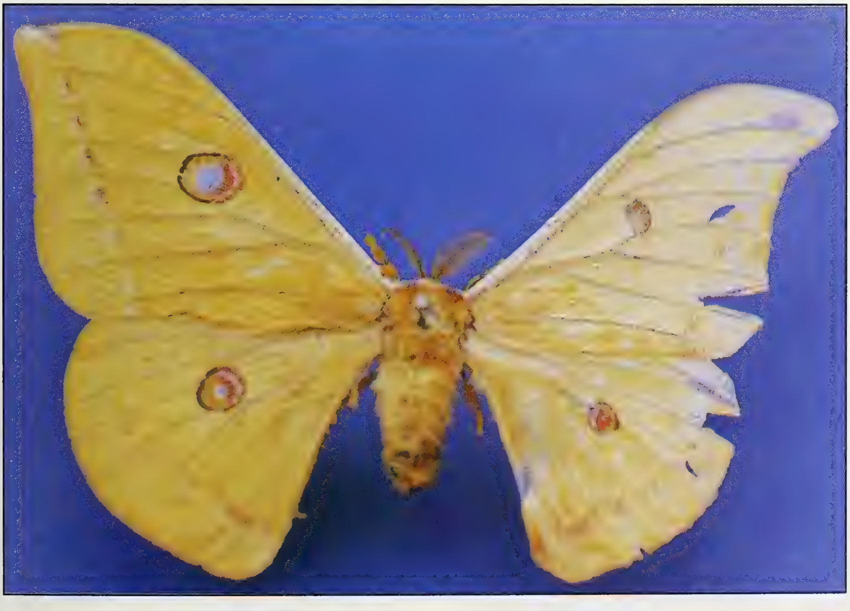
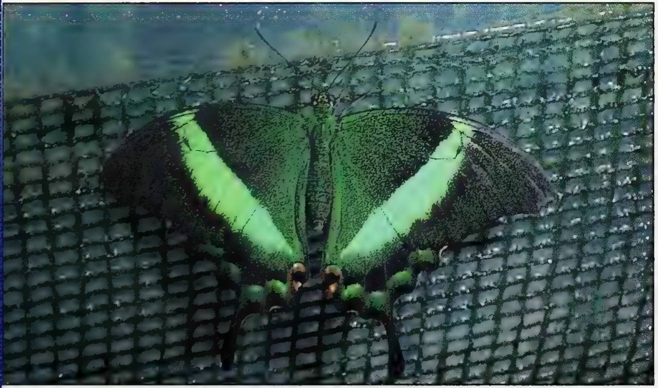
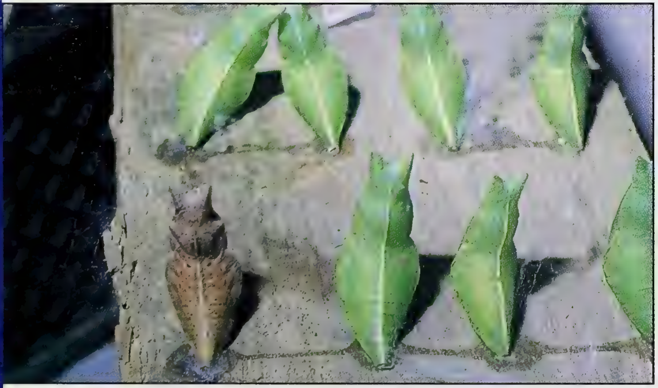


Fig. 2. Upperside of gynandromorph *Antheraea brunei.*

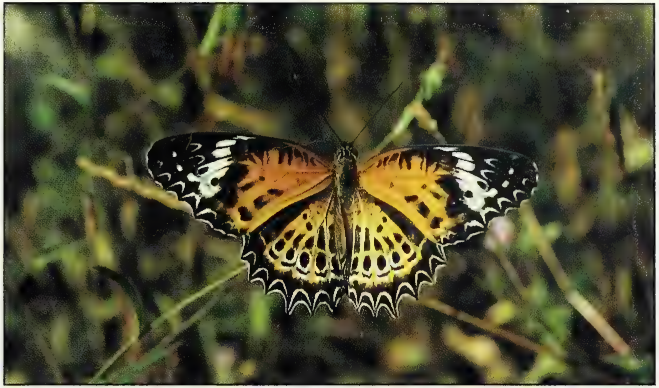
PLATE M



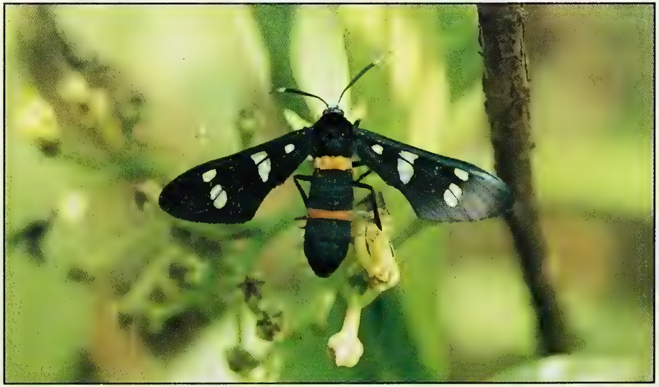
▲ Fig. 3. Upperside of *Papilio palinurus*.



▲ Fig. 4. The green and the brown chrysalids of *Papilio palinurus*.



▲ Fig. 5. The Tamil lacewing, *Cethosia nietneri*.



▲ Fig. 6. A Ctenuchid moth (*Euchromia* sp.) from near Mapusa. Note very large body in relation to wing size.

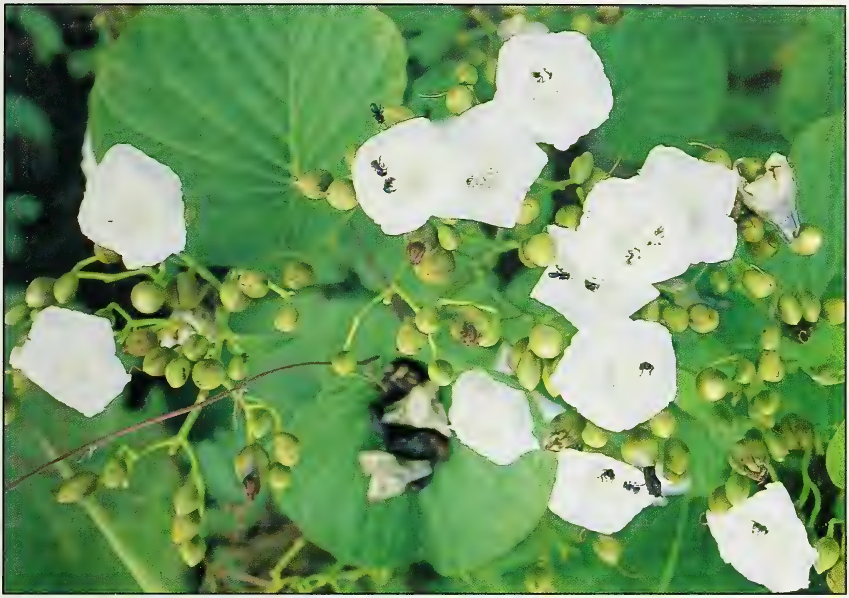


Fig. 7. Borneo: secondary rain forest creeper flowers attract large numbers of tiny pollinators.

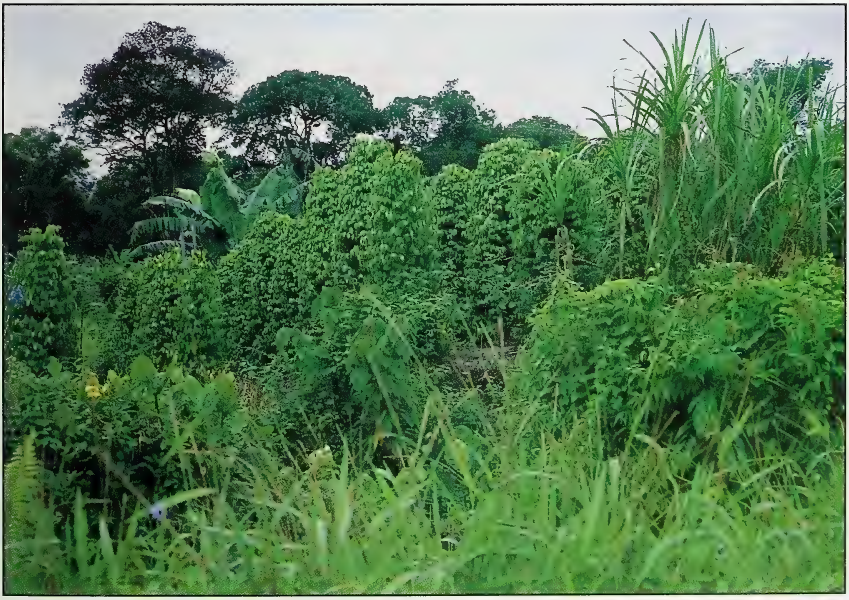


Fig. 8. Borneo: secondary rain forest consisting of pioneer species of the primary rain forest and which has its own insect assemblages.

PLATE O

Fig. 9. A mad dash, and 2969 – who danced on his toenails to avoid trampling a scorpion – misses a butterfly

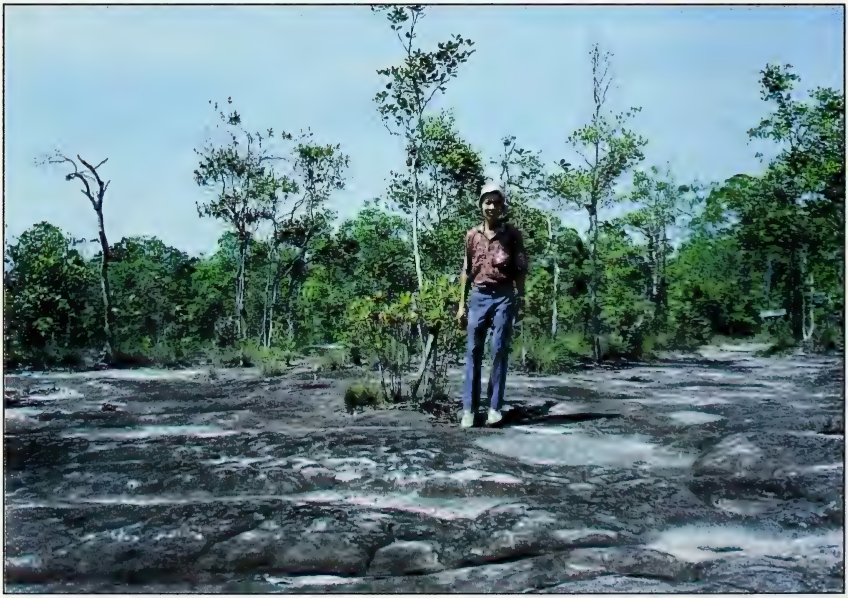


Fig. 10. Stephen on the padang at Bako National Park. Note the barren conditions and stunted pole forest.

PLATE P

THE NOTTINGHAM FAIR

by The Editor

I attended this much advertised Fair with son and grandson. We were all disappointed. The rather grand venue "The Commodore International Conference Centre" turned out to be a converted cinema. The 100 traders or exhibitors that were originally advertised were reduced to about 35. This could have been the reason why the venue had been changed from the banqueting room to the balcony, which, with its typical stepped cinema layout, made it impossible for any but the able-bodied to get around. The "ample free car parking" was in the adjoining streets, not the venue, whose car park was about the size of a pocket handkerchief. I gathered that nearby residents are not very happy about this, although of course it will apply to other events held in the centre as well.

The "International" title of the Fair was true, however. There were dealers from France, Germany, Czechoslovakia, and Japan. Some of the stock they had to offer was magnificent and not seen before. Of particular note was the very large display of mounted preserved larvae by the French dealer Mons. D. Fleurent, and I cannot but praise his expertise in this field. Amongst all the deadstock for sale I got the impression that Coleoptera predominated. In spite of our devalued pound most of the prices were Bond Street, not Petticoat Lane.

All this was fine for the specialist collector with money in the bank. There was almost *nothing* for the grandson, or any other youngsters, of which there were many accompanying their parents, to spend their pennies on. There were no "cheapies", no oddments, no second-hand books, no second-hand, or even new, equipment (apart from a few specialist items from *Small-Life Supplies*). Only two of the stands had any livestock and for most of the time we were there these had the biggest crush around them. There were T-shirts, Original Paintings, a few new books, of which those by the Derbyshire Entomological Society were the most interesting, a display of entomological paintings and drawings done by pupils of a local Junior school, another of Philatelic items relating to Hymenoptera, and two stands sold honey and related products. Both these were doing a roaring trade and I can now vouch for the excellence of Lincolnshire honey.

This Fair was a two-day event, which clearly accounted for the high price charged to traders and most of the "regulars" we find at Leicester and Kempton Park were absent. Held in a much smaller space than either of these events (and venues of the right size at the right price are few and far between) it could have, but did not, become over-crowded. One has to admire the enterprise of Dorothy Floyd in organising a more northerly event, but I certainly feel that a two-day one was over-ambitious; whether or not it was successful will become apparent if it is held in future.

We went on the Sunday and on leaving the Fair found, a few yards up the road, a large car boot sale and from here all three of us came back to the car loaded with bargains, so the day was not wasted. But I wonder how things went on the Monday.

MONARCH BUTTERFLIES IN AUSTRALIA

by John Perry (9850)

My wife and I visited our daughter in Adelaide in September last year. The spring that year in South Australia was the coldest and wettest on record but when the sun did shine it was accompanied by numbers of the Monarch butterfly (*Danaus plexippus*) which is in flight throughout the year near Adelaide and known to Australians as "The Wanderer".

This butterfly was not recorded in Australia until the mid nineteenth century and I wonder whether it could have arrived there on board ship. In view of doubts that it is capable of crossing the Atlantic under its own power various authorities have speculated that the specimens regularly recorded in Great Britain have arrived in this manner.

The Monarch has been unable to find a suitable foodplant in Great Britain but was more fortunate in Australia where the introduced South African cottonbush (*Asclepias rotundifolia*) has enabled the species to become common throughout the Continent.

I also saw one specimen of the Lesser wanderer (*Danaus chrysippus petilia*), a few Australian admirals (*Vanessa itea*) and numerous Australian Painted ladies (*Vanessa kershawi*).

A GYNANDROMORPH OF *ANTHERAEA BRUNEI*

by G. Ping (9478)

PO Box 2417, Bandar Seri, Begawan 1924, Brunei, Borneo.

I regularly run a mercury vapour light against a white wall outside my house which is on the edge of about two miles of mangrove swamp in Brunei, Borneo. A frequent visitor, although in small numbers, is the Saturniid moth *Antheraea brunei*. On 5th July 1992 I made the capture of a lifetime, a bilateral gynandromorph of this species. The upperside is shown on Plate M, Fig. 2; the underside in Fig. 1, and the antennae, clearly showing the sexual difference, in Fig. 2. The specimen has been deposited in the Entomology Department of the Natural History Museum.

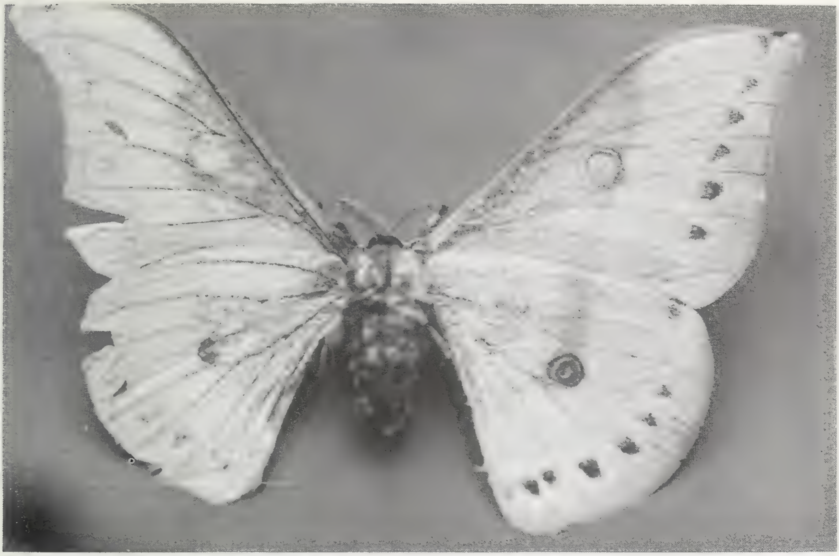


Fig. 1. Underside of *A. brunei* gynandromorph.

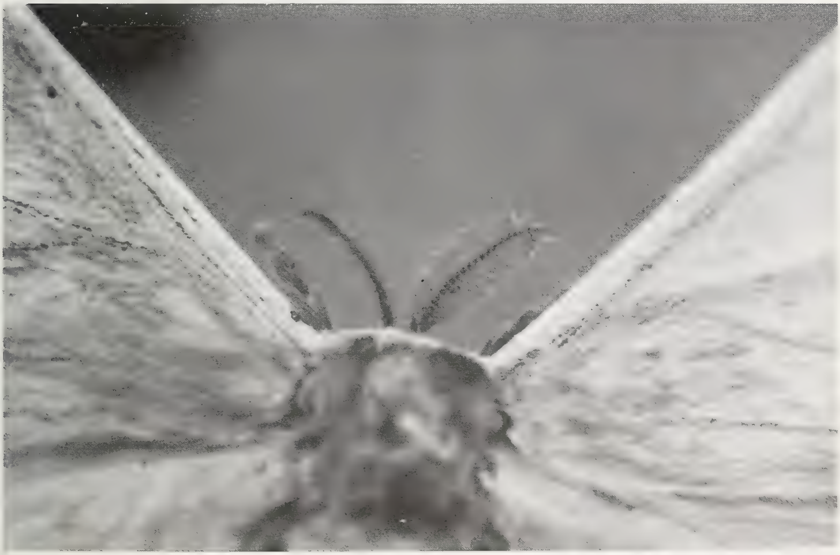


Fig. 2. Female, left, and male, right, of antennae of *A. brunei* gynandromorph.

BOOK REVIEWS

Y.E.S. International entomology resource guide (4th edition) compiled by Garry A. Dunn. 4to, pp.90. Young Entomologists' Society, June 1992.

Details of the contents of this guide were given in our October last issue (*Bulletin* **51**: 216). We have how seen a copy and are both impressed and disappointed. Impressed by its very extensive coverage; disappointed by its errors, both factual and typographical. As a 4th edition, many of these should have been corrected from previous issues, for the facts could easily have been checked on. It saddens me that so many publications, while kindly giving the AES a mention, rarely, if indeed ever, get our name and address correct. This applies to some other entries and much postage and time could be wasted as a result.

The good points: extensive coverage of societies, journals, traders (this being sub-divided into livestock, deadstock, artificial diet suppliers, apparatus, collecting equipment, gift items, services, and also includes some original sources of material), zoos and butterfly houses, book dealers and publishers, educational. Many familiar names are in this book, which is far more extensive than our *Directory for Entomologists* (omitted under ''Directory'' entry but mentioned elsewhere), but does concentrate on the Americas although with excellent European coverage.

The bad points: here are a few that stand out to my certain knowledge and make me wonder how many of the other entries are also wrong! *Butterfly News* ceased some years ago, as did *Tropical Butterflies* (Barrow); two organisations could not be contacted on the phone numbers given; *Entomologica Fennica* is given as *Annales Entomologica Fennici; Gem Publishing Co.* publish the *Entomologist's Gazette* not the *Entomologist's Record*; excellent as their stock of books is, *Books for Naturalists* do not specialise in used copies and back issues of journals; the AES is not listed as a publisher; *Nature Conservation* for *Nature Conservancy; Cottage* instead of *Lodge. County* for *Country*.

Nevertheless a very useful book — worth having. Brian Gardiner.

A Checklist of the Spiders of Staffordshire including sections on Harvestmen and Pseudoscorpions by G. Craig Slawson. Pp.30. Published by the City Museum and Art Gallery, Hanley, Stoke-on-Trent, Staffordshire ST1 3DW (Staffordshire Biological Recording Scheme Publication Number 14, 1991). ISBN 0 905080 94 7, ISSN 0309 2100. No price supplied.

The production of any list recording any particular order is not only a massive undertaking but, also, a very useful addition to our knowledge of the fauna of any particular vice-county. This small "booklet" is no exception and is particularly welcome as it covers a much neglected part of our fauna, the Araneae. Also, as a pleasant change, it covers one of the mid-England vice-counties, which tend to get neglected by recorders in general.

G. Craig Slawson sits on the Council of the British Arachnological Society and is the Area Organiser for the vice-county of Staffordshire, under the auspices of the Spider Recording Scheme, for which he is apparently doing some stirling work. The list of acknowledgements, contained at the beginning of this booklet, reflects the results that can be obtained by a small but dedicated band of workers and the contribution they can make to our current state of knowledge.

Though essentially an "in-house" publication, this booklet contains a wealth of information regarding the species found in Staffordshire. It could well serve as a model for others who are considering such an undertaking in their own vice-counties. It is a concise, un-ambiguous, informative species list that delivers its information quite clearly. It is clear that a great deal of care and checking has gone into its production and this reviewer wishes that there were lists of this kind available for every vice-county, providing a good base-line on which to build up further records. This booklet is not only up to date, but will also come to serve as a vital historic record in years to come.

Of interest to other AES members are titles in the same series which include Aculeate Hymenoptera, Diptera, Lepidoptera and Flowering Plants (some of which are provisional lists only). If these are produced to the same information content as that reviewed above, then I would have no qualms in recommending them to you. More information should be available about these booklets from the address at the heading.

James Wright

A practical guide to butterflies and moths in Southern Africa, edited by S.E. Woodall. A5, pp.222, 8 coloured plates, many black and white photographs and illustrations. ISBN 0-620-16774-2. Lepidopterists Society of Southern Africa, 1992. Obtainable from W. Henning, 1 Harry Laurence Street, Florida Park 1709, Transvaal, RSA. Price £10.00 (seamail) or £16.00 (air).

This is the first work in which all the techniques of studying African Lepidoptera are brought together in one easily read volume. Although primarily aimed at the African lepidopterist, 90% of the text is universal in nature, and would aid the student of Lepidoptera anywhere in the world.

The various chapters covering different topics are each written by an expert in that field. The topics themselves include methods of collecting, mounting and preserving specimens and a comprehensive guide to the dissection and preparation of genitalia. The general structure of the adult insect is illustrated and discussed with special reference to important taxonomic characteristics.

All aspects of the life history are covered with emphasis on practical breeding methods. All the Southern African Lepidoptera sub-orders and families are discussed and many are illustrated by colour photographs. The latest on conservation and population study methods are also covered in depth. Photographic techniques, both for live specimens in the field, and set specimens, are dealt with in great depth and length. For the more able among us, there is a well-detailed chapter on the construction of setting boards, store boxes and even cabinets.

All-in-all this book represents a huge accumulation of knowledge packed into one handy volume, and will be of great use to both beginners and advanced students alike.

Its publication has been sponsored by Monsanto Ltd, an Agricultural Group, and a vote of thanks must go to Monsanto's African Head of Operations, Steve Collins, for his tireless efforts.

N.B. Further information is available from myself at 7 Trinity Road, Four Oaks, Sutton Coldfield, West Midlands B75 6TH. Please enclose a stamped addressed envelope for your reply. Mike Newport

TUNGSTEN VERSUS UV LIGHT

by J.C. Jones (9694)

In reply to Jan Koryszko (*Bulletin* **51**: 383) about insects attracted to weak light. He mentions the dull blue light used in food shops, to attract and kill insects. This is in fact ultra violet light and the insects are killed by an electric charge in the metal bars that surround the light.

Since I started moth trapping in 1978, I have experimented with various lights but, being in a built-up area, MV was always out of the question, for fear of disturbing the neighbours. The strongest light I have used, was a regular 200 watt bulb. After some time, I also noticed the insect traps in butchers shops etc, and the power the dim light had over moths.

After a phone call to a local electrician, I set up my trap with a 15 watt UV tube, complete with starter and choke. The last night I used the 200 watt bulb, my catch was just 49 specimens of 16 species. The following night, using UV, the catch was increased to 478 of 37 species. The total for that month was 5,040 of 93 species, compared with 363 of 38 species for the same month (July) the previous year.

I have however had an Orange swift (*Hepialus sylvina*) almost attacking my cigarette end, totally ignoring the UV light. Any ideas . . .?

HOVERFLIES RECORDED BETWEEN 1987 AND 1991 INCLUSIVE

by Andrew Grayson (8621)

39 Percy End, Kirkbymoorside, York YO6 6DQ.

The family Syrphidae offers a rather obvious starting block for anyone wishing to study Diptera as it contains many attractive and common flies whose identification has been made reasonably straight-forward thanks to *British Hoverflies* by Alan Stubbs and Steven Falk. I have been studying Syrphidae for five seasons from the area of Yorkshire between Scarborough in the east, Sutton Bank in the west, Goathland in the north and Selby in the south, plus I spent three and a half days in East Anglia during June 1991. The following list concerns only insects recorded by myself and the abbreviations following the species are as follows:

NEY = North-east Yorkshire; SEY = South-east Yorkshire; WN = West Norfolk; and C = Cambridgeshire. The numbers following the abbreviations refer to number of sites present.

Baccha obscuripennis (NEY7, SEY3). I have quite often encountered *Baccha* species in sunny warm pockets of long grass and brambles that are sheltered by taller trees or bushes. All specimens of *Baccha* that I have examined have turned out to be *obscuripennis.*

Melanostoma mellinum (NEY9, SEY1). One of the commonest species of hoverfly. It is easily passed over as *Platycheirus* when seen in the field.

Melanostoma scalare (NEY15, SEY6). A common species that is found in many grassy localities. It is more distinctive than *mellinum* and probably less common.

Platycheirus albimanus (NEY24, SEY6). This species is rather variable in size. It is the most common species of hoverfly in my area of Yorkshire in terms of the number of places that it must be present and the overall numbers of individuals.

Platycheireus ambiguus (NEY3, SEY1). Easily passed over as a small *P. albimanus* in the field. I have found it at four sites and in each case it was found where long grass was sheltered by bushes and therefore the situation was sunny and warm. Swineherd Lane, Kirkbymoorside 30.7.90, female, Clifton 18.4.90, male, Jeffry Bog 27.4.91, female and Keldholme 6.5.91, male.

Platycheireus angustatus (NEY; WN1). A female was swept from long grass at the edge of a moorland stream that flows into Fen Bog on 21.88.90 and a male was swept from Brancaster Marsh in West Norfolk on 12.6.91.

Platycheireus clypeatus (NEY3, SEY2). The "species" has been the subject of recent species splits. I record it here as *P. clypeatus* from Riccal Dale 7.6.90, male, Clowcliff Plantation 25.8.90, male, Fen Bog 1.7.91, both sexes, Blaiskey Bank 4.8.91, male and Skipwith Common 12.8.91, both sexes.

Platycheirus manicatus (NEY3, SEY1, C1). Wharram 8.9.90, male, Cawthorne 13.6.90, female, and Rampton Cut 13.6.91, female.

Platycheirus peltatus (NEY6, SEY2, C1). I have found this species in a variety of grassland habitats in Yorkshire and also in vegetation at the edge of a sheltered drainage ditch at Overcote in Cambridgeshire on 14.6.91, female.

Platycheirus scambus (NEY6, SEY1). I have found this species in one relatively dry grassland locality, Maiden Greve Balk, and six permanently wet localities namely Fen Bog, Skipwith Common, Riccal Dale, Strensall Common, Elleron and Rievaulx.

Platycheirus scutatus (NEY4, SEY2). In contrast to *P. scambus* I have recorded this species from one area of wet grassland, Jeffry Bog, and five grassland areas in the following sites: Clifton, Maiden Greve Balk, Wharram, Cawthorne and Haugh Wood Pickering.

Platycheirus tarsalis (NEY5, SEY1). This species is supposed to be uncommon but would appear to be as common in my area of Yorkshire as any of the other species of *Platycheireus* with yellow and black marked abdomens of which the preceding five species are examples. I can record it as locally common from Upper Poppleton, Jeffry Bog, Wass Bank, Mill Wood Hovingham, Maiden Greve Balk and Piercy End, Kirkbymoorside.

Pyrophaena granditarsa (NEY2, SEY1). Superficially like *Xylota segnis* but, once recognised, a very distinctive species that I have found in long grass at marshy localities these being Northdale, Jeffry Bog and Rievaulx.

Pyrophaena rosarum (NEY2, C1). Like *P. granditarsa* this species is distinctive and I have only recorded it from three wet localities these being Riccal Dale on 24.6.90, female, Ellerton 9.7.90, male, and Wicken Fen 15.6.91, female.

Paragus haemorrhous (SEY1). This very small Syrphid could easily be passed over in the field as a pipunculid. I found males at North Grimston Quarry on 28.4.90 and 27.8.90. Several males were taken on each occasion as they hovered amongst sparse short grass at a height of only a few centimetres above the ground.

Chrysotoxum arcuatum (NEY3). Probably common at marshy or boggy localities around the southern edge of the North Yorkshire Moors. My specimens from Northdale, Ellerton and Cawthorne are all *C. arcuatum* and other *Chrysotoxum* that I have seen in the North Yorkshire Moors area were probably also *C. arcuatum*.

Chrysotoxum bicinctum (NEY1). A very distinctive species which is certainy not common in Yorkshire. I have met with it only once at Clifton near York on 25.7.89, female. Sadly this site is due for development and the best part of it, for insects, was "flattened" last year.

Dasysyrphyus albostriatus (NEY9, SEY3, WN1). A rather common species in Yorkshire which I also noted at Brancaster Marsh in West Norfolk.

Dasysyrphus friuliensis (NEY1). A rare species of which I found a male at Wass Bank on 23.5.91.

Dasysyrphus hilaris (NEY1). If this is a distinct species then I took a female in Riccal Dale on 10.6.90.

Dasysyrphus lunulatus (NEY3). Found at Clifton on 31.5.89, female, Riccal Dale 5.8.90, female and at Wass Bank on several dates.

Dasysyrphus tricinctus (NEY2, SEY1). Common at Cawthorne and Wass Bank. I also found a female at Cowcliff Plantation on 14.9.87.

Dasysyrphus venustus (NEY1, SEY1). I noted this species twice only. Cawthorne 19.5.89, male and Jeffry Bog 18.5.91, male.

Didea fasciata (NEY1). A late and rather rare fly of which I found one male by sweeping bracken at Cawthorne on 21.9.90.

Epistrophe eligans NEY6, SEY1). A common spring hoverfly. The males hover at around 6 - 8 feet from the ground in sunny situations around trees or bushes.

Epistrophe grossulariae NEY12, SEY2). Supposed to be an uncommon species but it is a common species in my area of Yorkshire. In fact it is one of the most common species in the area and is often found on umbells.

Episyrphus balteatus (NEY28, SEY6). Very common species found in every garden let alone anywhere else.

Eriozona syrphoides 2(NEY1). A spectacular bumblebee mimic that is assumed to have colonised Britain in the second half of this century. I found a female at Cawthorne on 5.6.91.

Leucozona glaucia (NEY5, SEY1). A local species which is abundant where it occurs. Ellerton, Cawthorne, Strensall Common, Jeffry Bog, Mill Wood Hovingham and Keldy Bridge.

Leucozona laternaria NEY2). Much less common than the other two *Leucozona* species. I found a female at Ellerton on 24.7.88 and another female in Riccal Dale on 24.6.90.

Leucozona lucorum (NEY8, SEY4). A common spring species often found in woodland rides or around bushes.

Megasyrphus annulipes (NEY2). I found females and one male of this rare species quite commonly at the edge of conifer plantations at Wass Bank and Cawthorne during 1990 but have not noted it at these two sites in any other year.

Melangyna compositarum (SEY1). A female was found on the road verge of the steep Langhill at Burythorpe on the Yorkshire wolds on 16.9.89.

Melangyna labiatarum (NEY1). A female was found at Strensall Common.

Melangyna lasiophthalma (NEY4, SEY1). Perhaps the most common species of *Melangyna* in Yorkshire. My records are: Clifton 29.3.90, male, Cowcliff Plantation 9.4.89, both sexes, Mill Wood Hovingham 9.4.89, male, Riccal Dale 28.4.91, mall, and Blaiskey Bank 14.7.91, female.

Melangyna quadrimaculata (NEY1, SEY1). A female was found on the flower head of a daffodil at Ampleforth College on 26.3.91 and three days later another female was found at Jeffry Bog.

Melangyna cincta (NEY2). Only noted twice and each time a male was taken hovering in dappled sunlight, at head height and well below the three canopy level. Sutton Bank 22.5.89 and Maiden Greve Balk 14.7.89.

Meliscaena auricollis (NEY3). Not at all common in my area of Yorkshire but surprisingly two of my records are from gardens. Piercy End, Kirkbymoorside 3.12.90, male, Beadlam 25.7.90, male, and Fen Bog 11.7.90, female.

Meliscaeva cinctella (NEY11, SEY3). Rather common in grassy areas with bushes or a backdrop of trees.

Metasyrphus corollae (NEY8, SEY3). Quite common but not as common as *M. luniger*.

Metasyrphus latifasciatus (NEY1). Only found once, at Clifton on 18.4.90, female.

Metasyrphus luniger (NEY13, SEY5). A very common species in Yorkshire.

Parasyrphus punctulatus (NEY1, SEY1). I found this species twice and both times along small muddy paths in woodland. Cowcliff Plantation 6.5.91, male, Cawthorne 10.5.91, female.

Parasyrphus vittiger (NEY1). Locally common at Wass Bank.

Scaeva pyrastri (NEY11, SEY3). Quite common in early August. A very distinctive fly.

Scaeva selenitica (NEY2). A similar fly to *S. pyrastri.* I have found it twice only. Dixon Scar 30.8.88, male and Cawthorne 27.7.90, female.

Sphaerophoria menthastri (NEY2, WN1). I have found only three of the most common species of *Sphaerophoria.* This one was found at three very wet grassland areas, these being Northdale, Strensall Common and Brancaster Marsh.

Sphaereophoria philanthus (NEY2, SEY2). Found at four very different grassland sites. Fen Bog 13.8.91, male, Wharram 11.6.91, male, Cawthorne 21.9.90, male and Burdale, 4.6.91, male.

Sphaerophoria scripta (NEY4, SEY2). The commonest species of the genus which I found in a variety of different grassland sites.

Syrphus ribesii (NEY17, SEY5). A very common species which is a familiar garden insect.

Syrphus torvus (NEY1, SEY2). All three *Syrphus* species are similar and I must have overlooked both *torvus* and *vitripennis* for the very common *ribesii.* I have found *torvus* on only three occasions, these being Strensall 9.4.89, male, Cowcliff Plantation 27.3.90, male, and North Grimston Quarry 27.3.90, female.

Syrphus vitripennis (NE7). This species is much less common in my area of Yorkshire than *ribesii* but I still can record it from seven different sites.

Xanthogramma citrofasciatum (SEY1). This is a very distinctive fly that has only been found at a couple of other sites in Yorkshire. I found it on a crumbling steep chalk hillside in Burdale on the Yorkshire Wolds in late May of the years 1989 and 1990.

Cheilosia albipila (NEY1). On 29.3.89 a number of these flies were hovering at the road verge at Strensall Common.

Cheilosia albitarsis (NEY8, SEY3, C.1). This fly is found commonly in May and June and often on buttercups.

Cheilosia antiqua (NEY7, SEY2). Apart from one record on 12.8.91, the many other dates that I have for this species are all in May.

Cheilosia bergenstammi (NEY5, SEY1). This species ranks with the previous two species as being one of the more common *Cheilosia* species. My records are Jeffry Bog 31.8.91, male, Wass Bank 9.8.90, female. Old Brickworks Kirkbymoorside 26.3.90, male, Ellerton 9.7.90, male, Clifton 18.4.90, male, and Haugh Wood Pickering on several dates.

Cheilosia fraterna (NEY1, SEY1). I have found this species twice only and both times on damp areas of grassland. Northdale 5.5.90, male and Cowcliff Plantation 6.5.91, male.

Cheilosia illustrata (NEY9, SEY3). Unlike virtually all the other British species of *Cheilosia,* this fly is easy to identify in the field. It is a quite common fly in my area of Yorkshire and is one of the most common species of the genus in the same area.

Cheilosia intonsa (NEY2, SEY1). My three records are Ellerburn 23.8.90, Wass Bank 29.8.91, male, and Jeffry Bog 31.8.91, female.

Cheilosia longula (NEY1, SEY1). I found this species in two heath/moorland sites with extensive tree cover. Wass Bank 19.9.91, female, and common at Skipwith Common.

Cheilosia pagana (NEY3, SEY2). Fairly common. My records are from Mill Wood Hovingham several dates, Riccal Dale 19.6.90, male, Clifton 8.5.89, male, Cowcliff Plantation 25.8.90, female and Jeffry Bog 10.8.91, male.

Cheilosia proxima (NEY5, SEY2). another fairly common species of this genus, at least in my area of Yorkshire.

Cheilosia pubera (SEY2). A nationally rare fly that is locally common at Jeffry Bog and Cowcliff Plantation.

Cheilosia scutellata (NEY1). Recorded only once. Strensall Common 25.6.91, female.

Cheilosia variabilis (NEY5, SEY1, C1). I recorded it from Mill Wood Hovingham 24.4.90, male, Maiden Greve Balk 24.5.91, male, Rampton Cut 13.6.91, Helmsley Quarry 24.6.91, Riccal Dale 19.5.91, Rievaulx 9.6.91 and Jeffry Bog on several dates.

Cheilosia vernalis (NEY2, SEY3). Recorded from five very different sites. Riccal Dale, Rivaulx, Jeffry Bog, North Brimston Quarry and Burdale.

Cheilosia vulpina (SEY3). Found at three sites on the chalk of the Yorkshire Wolds. Jeffry Bog 13.7.90, female, Cowcliff Plantation 16.6.90, female and Langhill Burythorpe 30.6.90, female.

Ferdinandea cuprea (NEY7). This fly is regarded as uncommon in Britain as a whole but it is a frequent and quite common fly in the valleys that run along the southern edge of the North Yorkshire Moors.

Ferdinandea ruficornis (NEY1). Initially I overlooked a specimen of this rare fly as a small *F. cuprea* until the time came for its identification when it was found to be quite clearly *F. ruficornis*. A male, it was taken in Riccal Dale on 20.5.90, a locality in which *F. cuprea* is common.

Portevinia maculata NEY4, SEY1). I found this species at five sites and each time at points at which Ramsons are found by a stream or riverside. Mill Wood Hovingham 30.5.90, Keldholme 20.5.91, male, Rievaulx 9.6.91, Jeffry Bog several dates and Riccal Dale several dates.

Rhingia campestris (NEY15, SEY2). A distinct and common fly which can only be confused with *R. rostrata* which I have not managed to find.

Chrysogaster chalybeata (SEY1). Only found once, that being on 21.7.90 when a male was found at Jeffry Bog.

Chrysogaster hirtella (NEY5, SEY2, WN1). Fairly common and the most frequent species of *Chrysogaster* in my area of Yorkshire.

Chrysogaster macquarti (NEY2). I found this rare species to be locally common at Fen Bog and further downstream in Northdale in August. *C. hirtella* also occurs in abundance in these two wet localities but its flight period is earlier.

Chrysogaster solstitialis (NEY2, SEY2). This, the most handsome of the *Chrysogaster* species, was sound commonly at Jeffry Bog and Ellerton and as singles from Langhill Burythorpe 30.6.90, female, and Riccal Dale 24.6.90, female.

Lejogaster metallina (NEY2, SEY1). Only noted from three sites, these being Ellerburn 6.6.90, Wharram 12.8.90 and Rievaulx 9.6.91. Not as common as would be expected in the area.

Neoascia meticulosa (NEY1). A male was swept from streamside vegetation in Northdale on 5.5.90.

Neoascia obliqua (NEY1). A female was swept from decaying pondside vegetation at Mill Wood Hovingham on 1.5.90.

Neoascia podagrica (NEY6, SEY1). The most common and widespread species of *Neoascia* in my area.

Neoascia tenur (NEY2, SEY1). Found to be locally common in July on the permanently boggy areas within Skipwith Common, Strensall Common and Fen Bog.

Orthonevra splendens (NEY1, SEY1). Found by the riverside at Jeffry Bog 21.7.90, male and at the edge of a ditch on Strensall Common on 3.9.91, female.

Sphegina clunipes (SEY1). *Sphegina* species spend most of their time hidden in vegetation and are usually taken by sweeping. I found a female at Jeffry Bog on 18.5.91, not by sweeping, but it was amongst thick vegetation.

Sphegina kimakowiczi (SEY1). I expected this, a male *Sphegina* from Jeffry Bog, on 13.7.91 to be *S. clunipes,* but on examination it was found to be *S. kimakowiczi.*

Eristalis arbustorum (NEY14, SEY5). This is one of the "Big Six" species of *Eristalis* that are common almost everywhere in my part of Yorkshire. I can record all the "Big Six" species from a good number of sites.

Eristalis hortorum (NEY7, SEY4). Common, but less so than some of the other "Big Six" species.

Eristalis intricarius (NEY8, SEY5). The least common of the "Big Six" species. I record it from a disproportionately large number of sites owing to its ease of recognition compared with other *Eristalis* species.

Eristalis nemorum (NEY9, SEY6). Often similar to *E. arbustorum* and in my opinion about equally as common in my area of Yorkshire.

Eristalis pertinax (NEY22, SEY8). This and *E. tenax* are the two most common species of *Eristalis* in the area.

Eristalis tenax (NEY27, SEY6, C1). Very common throughout the area.

Helophilus hybridus (NEY1). Despite extensive checking of *Helophilus* species I have only found this species at one site, that being Clifton on 25.7.89, 8.8.89 and 29.8.90.

Helophilus pendulus (NEY18, SEY3, C2). This is a common fly that is by far the most frequent *Helophilus* in my area.

Helophilus trivittatus (SEY1). I was surprised to find a male at North Grimston Quarry, on 19.8.89, which is an apparently unsuitable site. There are suitable wet sites nearby and I would guess that this was a wanderer as I searched for evidence of it at N.G.Q. on a number of other occasions, but without success.

Myathropa florea (NEY6, SEY2). A fairly common fly in my area of Yorkshire. My records are from North Grimston Quarry 27.8.90, female. Jeffry Bog 23.6.90, Clifton 31.7.90, male, Ellerton 8.8.90, Keldholme 24.6.91, Blaiskey Bank 28.7.91, female. Riccal Dale 8.6.981, female and Maiden Greve Balk on several dates.

Parhelophilus versicolor (C1). I have not noted this species in Yorkshire but found a male in a drainage ditch at Overcote in Cambridgeshire on 14.6.91.

Eumerus strigatus (C1). Another species that I have not found in Yorkshire although I know it exists in my area. It was common on the grassland at Devils Ditch in Cambridgeshire on 13.6.91.

Merodon equestris (NEY5). Despite being quite a large fly, then this species tends to be elusive as it often flies close to the ground in dense vegetation. I consider this species to be not all that common in my area of Yorkshire. New Earswick 7.6.88, female, Hemlsley Quarry 22.6.89, female, Maiden Greve Balk 25.5.90, female, Riccal Dale 26.5.91, male, and Keldholme 20.6.91, male.

Heringia heringi (NEY1). I found a male of this species at Maiden Greve Balk on 24.5.91.

Neocnemodon species (WN1). The *Neocnemodon* species females are indeterminable. I found a female of this genus at Wolferton in West Norfolk on 12.6.91.

Pipiza luteitarsis (NEY2). This is the only distinct species of *Pipiza*. My records are Clifton 24.4.90, male, and Maiden Greve Balk 22.5.91, male.

Pipiza noctiluca (NEY5, SEY1). This would appear to be the most common of the *Pipiza* species. As Stubbs points out, *Pipiza* is a genus in chaos and I find specimens very variable in external characters and have had to leave at least half of my specimens unnamed.

Pipizella varipes (SEY1). Found on a couple of occasions in mid June at Wharram.

Trichopsomyia flavitarsis (NEY2). Like the previous five species, this is a small undistinguished dark species. My records are both from grassland on acidic boggy ground at Fen Bog 1.7.981, male, and Strensall Common 23.7.91, male.

Sericomyia lappona (NEY3). Noted in May 1989 at Cawthorne, Elleron and Lockton High Moor which are all localities at the southern edge of the North Yorkshire Moors.

Sericomyia silentis (NEY12). Fairly common in heath/moorland localities in North-east Yorkshire. I have also noted it at Clifton and Helmsley Quarry which are slightly different habitats.

Volucella bombylans (NEY8, SEY4, WN1, C1). This is a large and distinctive fly that is fairly common in my area. I found one perched on a leaf at Wass Bank on 13.7.89. It was very close to many male *Psithyrus* species and at first glance I overlooked it for one of those.

Brachypalpoides lenta (NEY2). I first found this species at Wass Bank on 14.6.90 when I captured a male in flight. In flight *Brachypalpoides* could easily be mistaken for a black and red ichneumon, or a sawfly, but the flight movements are slightly different. The second occasion was a female resting on the leaves of Ramsons in Riccal Dale on 26.5.91.

Chalcosyrphus nemorum (SEY1). This species is certainly not common in Yorkshire and I have found it only once, that being at Jeffry Bog on 18.5.91, male.

Criorhina berberina (NEY1, SEY1). All *Criorhina* are scarce. I have records for all four species from Yorkshire but have as yet found only two species myself. Both colour forms of this species are equally as common in Riccal Dale and I have also found *C. berberina* at Jeffry Bog.

Criorhina floccosa (NEY1, SEY1). Only noted twice. Jeffry Bog 10.6.91, male and Rievaulx 9.6.91, male.

Syritta pipiens (NEY12, SEY2). This small hoverfly with dilated hind femora is one of the commonest hoverflies in the area.

Tropidia scita SEY1, WN1, C1). This is a locally common marsh species that I first noted on Brancaster Marsh on 12.6.91 with further records from Wicken Fen on 15.6.91 and Skipworth Common on 43.7.91.

Xylota coeruleiventris (NEY1). I have only found this species at Wass Bank but it has to be said that it occurs there in abundance.

Xylota florum (NEY1). I expected a male of this species found at Keldholme on 20.6.91 to be *X. coeruleiventris* but it is clearly *X. florum*.

Xylota segnis (NEY7, SEY5). A fairly common species throughout my area of Yorkshire.

Xylota sylvarum (NEY2). This distinctive fly is not common in my area of Yorkshire. I have only met up with it at Mill Wood Hovingham on 1.6.88, female, and by a ditch near Strensall Common on 3.7.90.

The total number of species in the above list is 117 of which *Parhelophilus versicolor, Eumerus strigatus* and the *Neocnemodon* species female are not from Yorkshire. This leaves 114 species recorded from Yorkshire by myself from 1987 to 1991 inclusive. Seventy-six species were recorded from V.C.61, S.E. Yorkshire and 102 species from V.C.62, N.E. Yorkshire. The generic and specific names that I have used are the same as those in *British Hoverflies* by Stubbs and Falk which is now five years out of date although I take Stubbs' advice and use his list until a new one is sorted out. There have been a number of recent species splits and name changes which I have not incorporated into my list as some of these are controversial and would only cause confusion to any AES members looking through this article.

If one takes the Vice-counties of S.E. Yorkshire and N.E. Yorkshire together then this area is basically the eastern half of Yorkshire in the traditional sense. In addition to my 114 species from this area then I can add the following species from the records of other dipterists and literature sources: *Platycheirus discimanus, P. immarginatus, Paragus tibialis, Chrysotoxum festivum, Metasyrphus latilunulatus, Cheilosia honesta, C. mutabilis, C. impressa, C. semifasciata, Chrysogaster viresens, Lejogaster splendida, Orthonevra nobilis, Anasymyia transfuga, Eristalinus sepulchralis, Eristalis abusivus, E. rupium, Eumerus ornatus, E. tuberculatus, Arctophila fulva, Criorhina asilica, C. ranunculi, Pocota personata, Xylota tarda* and *X. xanthocnema* bringing the total up to 138 species which is more than half of those on the British list. I have made no particular effort to contact other dipterists or search literature for records of extra species so it is fairly certain that at least 150 species are present in the eastern half of Yorkshire.

If my records of "number of sites present" are noted then in terms of sites present I make the following to be the most common species in N.E. and S.E. Yorkshire combined:

Episyrphus balteatus, 34
Eristalis tenax, 33
Platycheirus albimanus, 30
Eristalis pertinax, 30
Syrphus ribesii, 22
Melanostoma scalare, 21
Helophilus pendulus, 21
Eristalis arbustorum, 19
Metasyrphus luniger, 18
Rhingia campestris, 17
Volucella pellucens, 16
Eristalis nemorum, 15
Syritta pipiens, 14
Epistrophe grossulariae, 14
Meliscaeva cinctella, 14
Scaeva pyrastri, 14
Eristalis intricarius, 13
Xylota segnis, 12
Dasysyrphus albostriatus, 12
Cheilosia illustrata, 12
Sericomyia silentis, 12
Volucella bombylans, 12
Metasyrphus corollae, 11
Cheilosia albitarsis, 11
Eristalis horticola, 11

While the above list contains 25 common species it does feature the larger and more distinctive species in falsely high positions. The two *Volucella* species and *Sericomyia silentis* are examples. *Cheilosia albitarsis* is much more common than *C. illustrata* and *Melanostoma mellinum* and some of the *Platycheirus* species should be included as being more common than the *Volucella* species for example.

In a five year period, I have covered the area of Yorkshire between Scarborough in the east, Sutton Bank in the west, Goathland in the north and Selby in the South. My own assessment of the status of the 114 species that I found in the area is as follows:

VERY COMMON (Species that are found in abundance virtually everywhere.)

Platycheirus albimanus, Syrphus ribesii, Episyrphus balteatus, Eristalis pertinax, Metasyrphus luniger, Eristalis tenax.

COMMON (Species that are to be expected to be present in most sites and often in abundance.)

Baccha obscuripennis, Melanostoma mellinum, Melanostoma scalare, Dasysyrphus albostriatus, Epistrophe eligans, Epistrophe grossulariae, Meliscaeva cinctella, Metasyrphus corollae, Scaeva pyrastri, Cheilosia albitarsis, Rhingia campestris, Neoascia podagrica, Eristalis arbustorum, Eristalis nemorum, Helophilus pendulus, Syritta pipiens.

FAIRLY COMMON (Species that are found in a good number of sites and occasionally in abundance.)

Platycheirus clypeatus, Platycheirus manicatus, Platycheirus peltatus, Platycheirus scutatus, Platycheirus tarsalis, Leucozona lucorum, Melangyna lasiophthalma, Sphaerophoria scripta, Syrphus torvus, Syrphus vitripennis, Cheilosia antiqua, Cheilosia bergenstammi, Cheilosia illustrata, Cheilosia pagana, Cheilosia proxima, Cheilosia variabilis, Cheilosia vernalis, Chrysogaster hirtella, Eristalis hortorum, Eristalis intricarius, Myathropa florea, Pipiza noctiluca, Volucella bombylans, Volucella pellucens, Xylota segnis.

WIDESPREAD/LOCALLY COMMON (Species which are not rare but are thinly spread over the area or are common only in certain areas. Both this category and the following one contain a number of species that may be more common than is shown on this list.)

Platycheireus ambiguus, Pyrophaena granditarsa, Chrysotoxum arcuatum, Dasysyrphus lunulatus, Dasysyrphus tricinctus, Leucozona glauca, Meliscaeva auricollis, Sphaerophoria menthastri, Sphaerophoria philanthus, Cheilosia intonsa, Ferdinandea cuprea, Portevinia maculata, Chrysogaster solstitialis, Lejogaster metallina, Neoascia tenur, Merodon equestris, Sericomyia lappona, Sericomyia silentis.

RARE, VERY LOCAL AND SPECIES WHOSE STATUS WITHIN THE AREA IS UNCERTAIN

Platycheirus angustatus, Pyrophaena rosarum, Paragus haemorrhous, Chrysotoxum bicinctum, Dasysyrphus friuliensis, Dasysyrphus hilaris, Dasysyrphus venustus, Didea fasciata, Eriozona syrphoides, Leucozona laternaria, Megasyrphus annulipes, Melangyna compositarum, Melangyna labiatarum, Melangyna quadrimaculata, Melangyna cincta, Metasyrphus latifasciatus, Parasyrphus punctulatus, Parasyrphus vittiger, Scaeva selenitica, Xanthogramma citrofasciatum, Cheilosia albipila, Cheilosia fraterna, Cheilosia longula, Cheilosia pubera, Cheilosia scutellata, Cheilosia vulpina, Ferdinandea ruficornis, Chrysogaster chalybeata, Chrysogaster macquarti, Neoascia meticulosa, Neoascia obliqua, Orthonevra splendens, Sphegina clunipes, Sphegina kimakowiczi, Helophilus hybridus, Helophilus trivittatus, Heringia heringi, Pipiza luteitarsis, Pipizella varipes, Trichopsomyia flavitarsis, Brachypalpoides lenta, Chalcosyrphus nemorum, Criorhina berberina, Criorhina floccosa, Tropidia scita, Xylota coeruleiventris, Xylota florum, Xylota sylvarum.

THE LIST OF SITES MENTIONED IN THIS ARTICLE IS AS FOLLOWS:

WEST NORFOLK	*Grid Reference*
Brancaster Marsh	53/80-44-
Wolferton	53/66-28-

CAMBRIDGESHIRE

Rampton Cut	52/43-68-
Overcote	52/36-71-
Wicken Fen	52/55-70-
Devils Ditch	52/65-65-

NORTH-EAST YORKSHIRE

Swineherd Lane, Kirkbymoorside	44/704870
Clifton, York	44/59-54-
Keldholme	44/709865
Fen Bog	44/85-97-
Riccal Dale	44/63-84-
Blaiskey Bank	44/62-88-
Cawthorne	44/77-89-
Maiden Greve Balk	44/77-71-
Newbridge, Pickering	44/80-85-
Strensall Common	44/6--6--
Ellerton	44/78-90-
Rievaulx	44/56-84-
Haugh Wood, Pickering	44/79-88-
Upper Poppleton	44/54-54-
Wass Bank	44/56-80-
Mill Wood, Hovingham	44/65-74-
Piercy End, Kirkbymoorside	44/698863
Northdale	44/84-97-
Keldy Bridge	44/776908
Ampleforth College	44/596788
Sutton Bank	445/51-82-
Beadlam	44/652847
Dixon Scar	44/51-82-
Old Brickworks, Kirkbymoorside	44/70-86-
Ellerburn	44/85-84-
Helmsley Quarry	44/615847
New Earswick	44/609554

SOUTH-EAST YORKSHIRE

Jeffry Bog	44/75-66
Cowcliff Plantation	44/85-66-
Skipwith Common	44/6--3--
Wharram	44/85-65-
North Grimston Quarry	44/847673
Langhill, Burythorpe	44/80-64-
Burdale	44/86-62-

BOOKS NOTICED

Richmond Pubishing Co Ltd have recently issued three more books in their series of *Naturalists' Handbooks*. These are:

Plant Galls by Margaret Redfern and R.R. Askew, with coloured plates by M.L. and R.R. Askew. Innumerable line illustrations. A5, pp.99. No. 17. 1990. Price £13.00 hardback, £7.95 paperback.

Insects on cabbages and oil-seed rape by William D.J. Kirk, with plates and illustrations by Miranda Gray. A5, pp.66, No. 18. 1990. Price £13.00 hardback, £7.95 paperback.

Pollution monitoring with lichens by D.H.S. Richardson. Colour plates by Claire Dalby. A5, pp.76. No. 19. 1990. Price £13.00 hardback, £7.95 paperback.

They are of the usual high standard to be expected of this series and provide appropriate information on their subjects. That on galls has a general introduction and deals with both galls caused by insects and those by other organisms. The keys to identification, based on the host plant, form the main body of the work and are profusely illustrated. There is a chapter on the parasites of the gall-formers and another on the complex food webs resulting from the intricate relationships of this aspect of biology.

Cabbages contain glucosinolates, poisonous to many insects, and this book demonstrates that the numerous feeders on these plants are specialists able to thrive on such substances. Each part (root, stem, leaves, heart) of the cabbage has its specialist attacker. The book deals not only with the eaters, but also with the visitors to the flowers of cabbage and rape. Separate keys are provided to larvae and non-flying adults, to beetles, to flies and to Lepidoptera. That major pest of cabbages, the pigeon, is naturally not mentioned, but does it, I wonder, help control the insects during its depredations?

Although nothing to do with entomology, the lichen book draws our attention to the serious effect pollution (including radio-active, an interesting account) has on these plants. From our point of view any effect on lichens is linked to melanism in moths and of course a serious decline in them will have a drastic effect on those insects that feed on them.

All three books have an extensive bibliography and index and give useful addresses. It is unfortunate that publishers/authors, while kindly giving us a mention, never seem to check with the organisation concerned, for both AES and the BENHS are given the wrong addresses.

Dorset Hoverflies, by Ted and Dave Levy and Bill Dean is a 70-page booklet which provides articles, distribution maps and some delightful illustrations on the 200 hoverfly species that have been recorded in Dorset. It represents eight years' fieldwork and research on specimens held by both national and local Museums. We hope to publish a critical review in due course; meanwhile it is available, price £4.45 post free from Dorset Environmental Records Centre, Colliton House Annexe, Glyde Path Road, Dorchester DT1 1XJ.

SILVER CLOUDS ALONG THE SEVERN

by Dominic Rey (7929)

I am unsure how common the Silver cloud (*Egira conspicillaris*) is in its range but in parts of lowland Gloucestershire near the River Severn, it is not uncommon. It is by no means fixed to a certain type of habitat for it occurs in gardens as well as on agricultural land, habitats which are found all over the country, although the moth is not.

A spot where it does come to MV quite frequently, a dozen or so a night, is along a hedgerow down a track through fields, about four miles north of the City of Gloucester.

The flight time appears to be from late April until mid May or so. Most specimens of both sexes that do turn up are of the blackish form *melaleuca*. The typical "plain" form is less frequent and have all been males. Finally, an attractive form of the female known as *intermedia* is the rarest of all, for I have seen only one so far, a fresh specimen which came to light on 18th May 1992.

BUMBLE BEES OF THE MONGOLIAN HIGHLANDS

by Charles S. Cockell (9699)

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Introduction

During August 1990 collections of bumble bees were made at high altitude regions in the Mongolian People's Republic by members of Expedition Mongolia 1990. The expedition was the first British led expedition to Mongolia, the culmination of five years' work, with support from the Royal Geographical Society as well as Royal Patronage.

The bumble bee collections from Mongolia have in the past been a less than complete representation of the overall diversity of species in the country. Thus, in collaboration with Dr Paul Williams of the Natural History Museum, the expedition undertook to make collections of the bumble bee fauna.

Of the various Mongolian biotypes, the greatest proportion is made up of low lying open expanses of grassy steppe in North and Central Mongolia and open expanses of semi-arid land in the Gobi desert of South Mongolia. In the winter, temperatures in these regions can drop to around −50°C and in such exposed regions, little can survive, the ground ice providing poor refuge to most fauna. In the summer months these regions show a far greater variety of insect life, partly because of the ability of flowers to grow in these milder conditions and partly because of the increased rainfall.

The bumble bee fauna is found to be more abundant in the highland and forest areas of Mongolia, which are themselves divided into two broad regions:

1. The Altai mountain region. Sweeping from the north-west of Mongolia down to the south of the Gobi desert, the Altai mountains are in general arid during most of the year, although steppe grass, alpine-like plants and low lying scrub were common along mountain streams and within valleys. Low scrubby trees were also observed, but with difficult growth. The insects in these mountains were reasonably diverse, but sparse relative to the Hangai Hentin region.

2. The Hangai Hentin mountains. These mountains in the north of the country are covered in forest, meadows and wild flowers, with a rich insect fauna. They experience sudden and extensive rain downpours in summer, making them a fertile area for agriculture and plant life in general. The Hangai Hentin region covers about a third of the country.

Using a Soviet military lorry, the eight members of the expedition, including four Mongolians from the Mongolian State University, Ulan

Bator, were able to travel to both of these areas to make bumble bee collections.

Throughout periods of collecting the climate was generally warm and dry in both the Altai and Hangai Hentin regions, but interspersed with the occasional downpours and showers, as are characteristic with the country as a whole. August can be said to represent the "tail-end" of the Mongolian summer. Of interest to note is that 1990 was the wettest summer recorded in Mongolia.

Methods

The team members made regular excursions into the mountains and hills of both of these regions and collected using standard kite nets (Watkins and Doncaster), dispatching the bees in a bottle containing ethyl ethanoate soaked into cotton wool. During collecting excursions it was found that ethyl ethanoate was far more effective than the alternative available to the expedition — ammonia. Large numbers of bees were in general collected at any one time and the ethyl ethanoate was found to dispatch them in the order of ten to twenty times faster than the ammonia. Unless one is prepared to risk a high build up of bees in the jar, which can lead to specimen damage through bee deposits and general movement of bees, ethyl ethanoate is highly recommended for small teams of individuals collecting significant numbers. This applies equally to other insect groups.

The maximum number of bees were collected in order to increase the statistical chances of less abundant bees being caught. For example, one male of the species *B. sushkini* was collected alongside 104 males of *B. bohemicus* in the same area. Given that many of the colour variations are subtle, it would be impractical to attempt identification and sorting in the field.

Open areas of wild flowers, grassy slopes and particularly forest margins were found to be the optimum areas for collecting bees, although at higher altitudes the increase in wind was found to make protected areas more favourable.

Specimens were sealed in paper envelopes (Watkins and Doncaster) on which the date and location of capture was marked, this information then being recorded in a notebook prior to packaging of envelopes for return to England.

Results

The results given below indicate the types and numbers of each species that were caught within particular regions of Mongolia. The following numbering method is used to give some indication of the distribution of each species:

(1) Found also in Britain
(2) Found in Europe (excluding Turkey and the former USSR)
(3) Specific to the Mongolian region and a particularly valuable addition to existing collections
(4) More widely distributed in Asia.

Altai region

Gobi/Altai base camp (43.7°N, 103.5°E). Altitude: 1,300 - 2,500 metres

B. (Sibiricobombus) sibiricus (Fabricius) (3) — 1 worker.

Hirjirt area (46.9°N, 102.8°E). Altitude: 1,000 metres

B. (Sibiricobumbus) sibiricus (Fabricius) (3) — 1 male.

Hangai Hentin Region

Karakorum (47.2°N, 102.8°E). Altitude: 1,000 - 1,500 metres.

B. (Megabombus) ? sushkini (Skirokov) (3) — 2 workers.
B. (Rhodobombus) armeniacus Radoszkowski (2) — 2 workers.
B. (Subterraneobombus) melanurus Lepeletier s.l. (3) — 1 worker, 1 male.
B. (Pyrobombus) biroi Vogt (4) — 18 workers.
B. (Bombus) sporadicus Nylander (2) — 4 workers.
B. (Bombus) patagiatus Nylander (4) — 2 workers, 1 male.
B. (Sibiricobombus) asiaticus Morawitz (4) — 1 worker.
B. (Melanobombus) keriensis Morawitz (4) — 1 worker.
B. (Melanobombus) sichelii (Radoszkowski (2) — 9 workers.

Terelj (47.8°N, 107.3°E). Altitude: 1,200 - 2,000 metres.
B. (Psithyrus) bohemicus Seidl (1) — 104 males.
B. (Psithyrus) sylvestris (Lepeletier) (1) — 10 males.
B. (Megabombus) sushkini (Skorikov) (3) — 1 worker, 1 male.
B. (Thoracobombus) pseudobaicalensis Vogt (4) — 1 worker.
B. (Thoracobombus) schrenki Morawitz (4) — 4 workers, 6 males.
B. (Rhodobombus) armeniacus Radoszkowski (2) — 1 worker.
B. (Subterraneobombus) melanurus Lepeletier s.l. (4) — 1 male.
B. (Subterraneobombus) subterraneus (Linnaeus) (1) — 1 male.
B. (Pyrobombus) hypnorum (Linnaeus) (2) — 1 male.
B. (Pyrobombus) modestus Eversmann (3) — 4 workers, 24 males.
B. (Pyrobombus) biroi Voigt (4) — 1 worker.
B. (Bombus) lucorum (Linnaeus) (1) — 27 workers, 22 males.
B. (Sibiricobombus) sibiricus (Fabricius) (3) — 1 worker.
B. (Melanobombus) keriensis Morawitz (4) — 1 worker
B. Melanobombus sichelii Radoszkowski (2) — 14 workers, 18 males.

These bumble bee collections have made a significant contribution to the material available for recognising patterns amongst Asian taxa. The males of a given species are of the greatest value since they often provide a particularly good means of morphological study. The expedition's period in Mongolia, i.e. August, tied in with the time when male specimens are most actively on the wing. The information derived from these collections may also be very useful for the study of bee distribution and ancestry.

Mongolia was a poorly represented region, but now there is a strong basis for continued contribution to bumble bee studies in this region.

Acknowledgements

The expedition would like to thank Dr Paul Williams of the Natural History Museum for his identification of the bees, advice, and for valuable information on his and other current work on bumble bees.

REFERENCE

Expedition Mongolia 1900. Expedition Mongolia publications, ISBN 0-9517021-0-6.

AN UNUSUAL LOCALITY FOR THE CRESCENT DART

by Roger Hayward (2769)

At the British Entomological and Natural History Society's Annual Exhibition on 31st October last year, a strange moth caught in my MV trap on 18th July 1992 was identified (by Barry Goater, John Langmaid and Bernard Skinner) as *Agrotis trux* (Crescent dart). The moth was taken in my garden here in Slough, surely a strange locality for this coastal species. The moth itself is unusual, for although it is a male, it has the dark forewings of a female. It does, however, lack the pale orbicular stigma.

GWENT WILDLIFE SITES WANTED

The Gwent Wildlife Trust is trying to establish a register of wildlife sites in the county. It is envisaged that the register will highlight sites which are of county or regional significance. It would help the trust greatly if members could supply details of any sites in the county for the scarcest species of insect (about 20) in Gwent in particular. Information should be sent to Martin Wragg, Gwent Wildlife Trust, 16 White Swann Court, Monmouth, Gwent NP5 3NY.

NOTICE TO AUTHORS

Could I please ask all contributors sending me material for the *Bulletin* to submit it in **DOUBLE-SPACING** and with wide margins on the paper. This applies whether the manuscript is word-processed, typewritten or hand-written.

Nothing should by underlined and only the title wholly written in capitals. Manuscripts so presented save the Society money, for many single-spaced and misguidedly underlined articles have to be re-typed before there is enough room to edit them.

A CASE OF MISTAKEN IDENTITY: BOOKLOUSE NOT HEADLOUSE

by John Hay (6878)

336 Glasgow Road, Ralston, Paisley PA1 3BH, Scotland.

I was recently called upon to examine a live insect which had been found in an opened jar of baby food. The mother feeding the meal to her child was horrified since she was convinced that the insect was a headlouse which had fallen into the food from her child's hair. The mother suspected that the child had contracted "nits" from someone at a creche where the child spent part of certain weekdays.

Inspection of the "headlouse" revealed the presence of slender legs and long filamentous antennae: these were clearly not features associated with the nymphal stages of headlice, which have relatively massive claws and short stubby antennae. The insect in question also had a fairly wide head which remained quite mobile, despite the adhesion of the viscous baby food, and mandibles which indicated that it fed by chewing. These features are quite different from the sucking mouthparts and small slender head of *Pediculus humanus capitis* (Anoplura). The contaminating insect was subsequently identified as an adult female *Liposcelis terricolis* (Psocoptera), the most commonly encountered booklouse in domestic situations. Incidentally, this is one of the species of psocid which is renowned as a destroyer of insect collections.

It was therefore possible to reassure the distressed mother that the insect in the food was (as far as we are aware) of no direct medical importance.

The confusion in identification of booklice and headlice is not completely surprising since superficially with the naked eye, headlice nymphs and wingless psocids have a similar morphology. It requires magnification to identify the anatomical features which distinguish the two types of insect (Badonnel, 1943).

Two cases of suspected headlouse infestations, which were in reality harmless infestations with booklice, have been reported, one from the UK (Burgess *et al.,* 1991) and one from Denmark (Arevad *et al.,* 1990). The details of both cases make interesting reading and reflect in general terms the attitude of non-entomologists to certain types of insect. In this context, it is interesting to note that booklice are generally quite difficult to capture, and because of their relatively small size and soft body, are prone to disintegration if handled improperly, or if permitted to dry out in non-humid conditions. Thus, in the absence of an actual specimen, some individuals suspecting themselves to be infested with ectoparasites, might be dismissed by their physician as neurotic, or in need of psychiatric attention (Anon. 1991).

These observations may not be exclusive to humans. Several species of psocid can be found in bird or small mammal shelters, and they have actually been in some instances, detected amongst feathers and fur (Mockford, 1967, 1971). Thus domestic pets which have come into contact with such creatures, may accidentally become associated with psocids; these may then be inadvertently and incorrectly assigned the role of ectoparasites on the fur of the pet.

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by Andrew Eames (4648)

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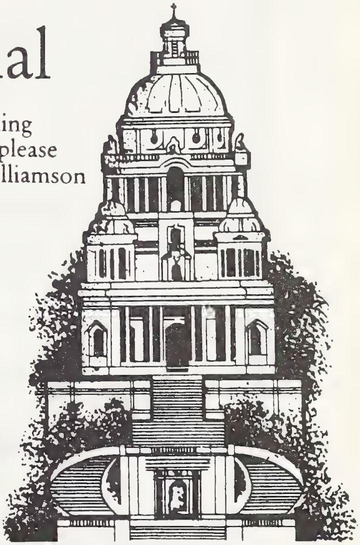

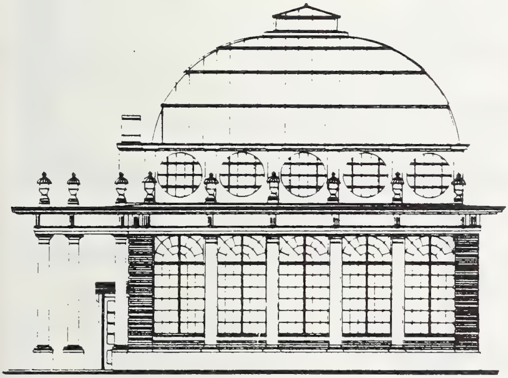

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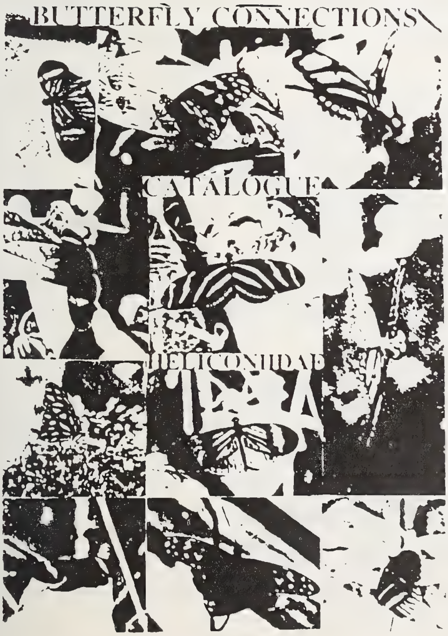

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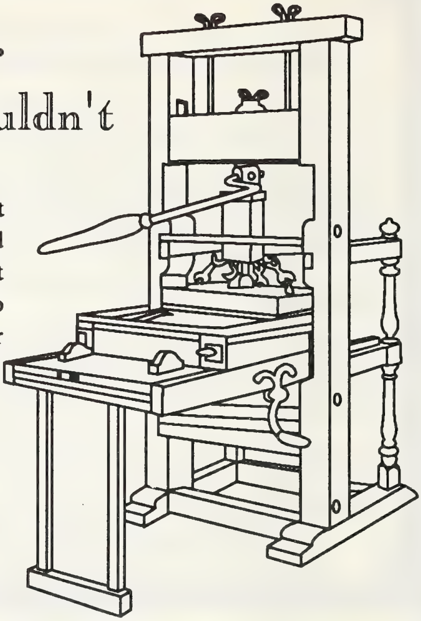

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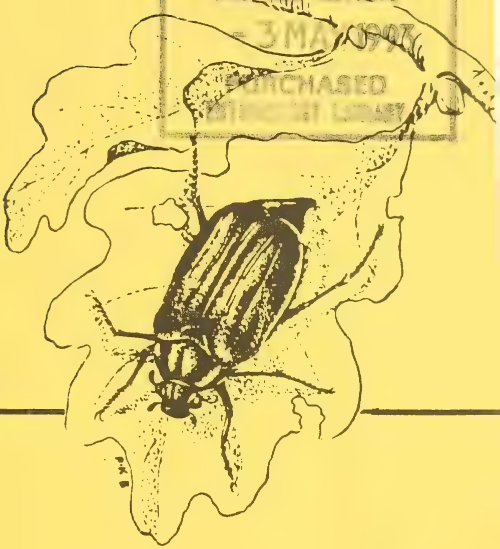

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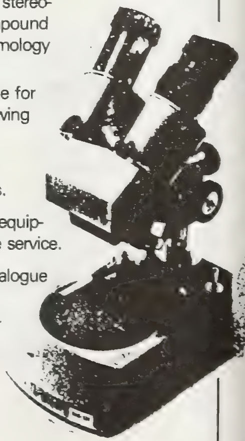

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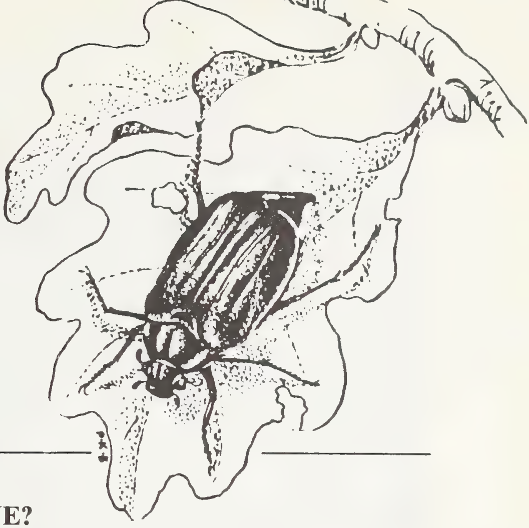

THE BRIGHT-LINE BRIGHT-EYE?

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Luminous larvae

Records of luminous caterpillars go back to the observations of Gimmerthal of Riga (1), who in 1829 stated that he had found brightly-phosphorescent larvae of *Eurois occulta,* which remained luminous for eight days in captivity. When you come to think of it, most of us would be pleased just to *find* larvae of *Eurois occulta,* never mind brightly-phosphorescent ones. Boisduval (2), in 1832, made a similar observation H the more prosaic larvae of *Lacanoba oleracea,* and Holyroyds (3), in 1916, ". . . observed a luminous larva, probably of a noctuid moth, near Brighton, Sussex."

Rye (4), in 1878, referred to both the above observations and quoted a description from T.P. Bigg-Withers's book *Pioneering in South Brazil,* published in 1878, of ". . . a luminous caterpillar with stinging hairs and light shining from each segment so that it looked like a railroad train." These animals were said to be abundant in October and November near the tropic of Capricorn, ". . . lining the borders of camps and lighting up the surroundings." Significantly, such as display has never been reported by Bates or other travellers in the region.

There can, however, be no doubt that caterpillars can occasionally become infected with luminous bacteria, and that Gimmerthal and Boisduval may well have observed such specimens. The subject has been extensively investigated by Stammer (5) and Stammer and Pfeiffer (6) in a lengthy monograph. These authors found a brightly-luminescent caterpillar of *L. oleracea* near Steinau on the Oder, and inoculated non-luminous caterpillars with the luminous fluid. This fluid was found to be swarming with *Bacterium haemophosphoreum,* quite different from three other described luminous bacteria pathogenic for invertebrates. *Bacterium haemophosphoreum* grew well on artificial culture media and could be transferred to *Agrotis* and *Pieris* larvae as well as many other insects of other orders, both larvae and adults. Certain insects, however, were resistant to the infection, including *Laothoë populi,* sawfly larvae and, curiously enough, *Lampyris noctiluca,* the European glow-worm; the resistance of this latter is of particular interest. Attempts to infect earthworms, *Gammarus,* crayfish, frogs and the fishes *Phoxinus laevis* and *Leuciscus rutilus* with *Bacterium haemophosphoreum* failed, so the bacterium appears to affect only invertebrates. A noteworthy point was that the infection could not be transmitted by mouth, i.e. by normal feeding, but only by inoculation. Many studies on immune system reactions were made in connection with these experiments.

Adult moths

The eyes of moths are often said to be "luminous" when reflecting light, but this, of course, is not luminescence. Prevost (7), in 1810, was the earliest to demonstrate that this supposed "luminescence" was merely the reflection of light from their multifaceted eyes. Panceri (8), in 1872, had conducted experiments with a species of *Catocala* in a totally-darkened room and found no luminescence. The apparent light from a moth's eyes is a striking reflection, but certainly not bioluminescence.

Schultz (9) in 1899, on capturing a *Brachionycha sphinx,* stated: "Both antennae were luminous, one for its whole length and the other near the middle. On squeezing one antenna, luminous material was exuded on to my fingers. The other antenna remained luminous for two days, when the moth died." Schultz thought that the antennae had come into contact with some extraneous luminous material. The long duration of the luminescence, coupled with the luminous exudation referred to, would indicate a luminous bacterial infection.

Arctia caja

A curious record exists *in litt.* by Issak (10) regarding the alleged luminescence of *Arctia caja.* He stated that there were two glands on the dorsal surface of the prothorax of the imago in both sexes which, when the moth was stimulated or disturbed, secreted a greenish luminescent fluid. This luminous secretion never appeared spontaneously, but could be stimulated by squeezing the head or thorax. The luminescence, he stated, persisted for a short time, after which it was reabsorbed.

Hykes (11), in 1917, pointed out that such an exudation from the thorax of *Arctia caja* had been observed many times, and it had been described variously as oily, greenish, yellowish, and/or possessing a distinct odour, but no one had reported it to be luminous. Harvey, a noted authority on bioluminescence, reported having talked to, or corresponded with, a number of entomologists, none of whom had ever noticed any sign of luminescence in *Arctia caja*.

A very careful and detailed investigation was made in 1918 and 1922 by an unidentified entomologist (12), who examined more than 200 specimens of *Arctia caja*, which produced tiny droplets of this secretion both in daylight and in total darkness, but never at any time did he observe any luminescence. I am inclined to believe that what he saw, and Issak before him, was light reflected from the spherical globules of the secretion.

Hepp (13), not to be deterred, stated in 1927 that when *Arctia caja* is disturbed (repeating the earlier claim) ". . . a light green organ is exposed which exudes a drop of a pungent luminous secretion." He also said that he had observed this phenomenon in *Parasemia plantaginis*, and from tubercles in the skin of the larvae of *Saturnia pavonia* and *Zygaena peucedani*.

My own view, for what it's worth, is that all these venerable gentlemen were victims of wishful thinking!

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THE GENUS MALACOSOMA IN SPAIN

by Gareth King (5045)

This genus is represented by five species in Spain, namely: *Malacosoma neustria*, *M. castrensis, M. alpicola, M. franconica,* and *M. laurae*.

I have chosen to describe this genus in detail mainly because I came across all but *laurae* whilst I was resident in the country from 1988-1991, but also due to the problems encountered with identifying them, overall, in the larval stage.

I have used some established reference works in ascertaining their identity, none of which are available in Britain. One especially useful series is that put out by the Spanish equivalent of the MAFF namely El Ministerio de Agricultura, Pesca y Alimentación. Their guides to larvae written by Carlos Gómez de Aizpùrua contain some beautiful photographs.

I spent most of the time over nearly three years in Madrid, but also Huelva. As regards this lasiocamid genus I also travelled up to Orduna in the northern province of Vizcaya.

I shall deal with each species individually.

M. neustria

According to the literature *neustria* is found throughout Spain, except the north-west of Galacia and the higher peaks of the Pyrenees. I actually came across the larvae in only two places in Villalba (Madrid) and Las Navas del Marques (Avila). Both findings were of newly hatched larvae in the spring.

It is mentioned as a pest species in Spain and one particularly bad infestation occurred in the north of the province of Madrid in 1987. Apparently 20,000 hectares of oaks were affected with massive damage incurred.

M. castrensis

Again this species is widely distributed throughout Spain, although I only discovered the larvae in two quite distinct places. In June 1990 I found a nest of three-quarters grown larvae in Orduna, the next batch were collected in March 1991 in Isla Canela west of Huelva — a difference of some 900m in altitude.

M. alpicola

This species is found in various isolated colonies in Spain, according to Gómez de Aizpùrua, in the provinces of Santander, Burgos, Toledo and Andalusia in the south. Santiago Soria adds Madrid and Navarra. I found larvae in Valdemorillo (Madrid), Villalba and Baldemoro (Madrid). All were found in April 1990.

Certainly not an easy species to distinguish from *franconica,* but there is a useful photograph in Soria's book depicting the head capsules of three *Malacosoma* species.

M. franconica

This moth is even more restricted in distribution than *alpicola,* being found in the central sierras and in Aragón. I collected larvae initially in Villalba in May 1989 when they were actually very common. That year I also recorded an example in San Rafael (Segovia).

In 1990 the following spring I recorded larvae in Valdemorillo and Las Navas del Marques. The former were much less advanced in development, presumably because of the more severe climate so high up — 1,318m.

Notes on Malacosoma *in captivity*

All species were difficult to rear once safely esconced indoors. This was despite netting cages being used. I think it due, at least in the case of those examples collected from a high altitude, to the Madrid summer heat.

The only species to make it successfully through to the adult stage were *alpicola* and *franconica.* The *neustria* and *castrensis* perished before spinning-up.

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A BRIMSTONE BUTTERFLY OBSERVATION

by Jan Koryszko (6089)

On 24th May 1992, I visited Weston Sprink Wood. A number of common species were recorded, but I was surprised to see so many Brimstone butterflies (*Gonepteryx rhamni*), all males; seven on a small patch of bluebells, others flying along the paths and through the wood. No females were seen. Buckthorn bushes are quite plentiful in the area.

During the early part of this century the late B. Bryan, who lived close by at Normacot, discovered the Brimstone at Weston Sprink, but in small numbers only. Since then it has been considered extinct, when it is not seen for many years, only to reappear again.

I think it exists at low density and is often overlooked, and from time to time a population explosion occurs, to be followed by scarcity again in following years. I myself have seen it on and off in the area since 1975. On 24th May also, Mr R.G. Warren saw quite a few at Burnt Wood, again all males, when he visited the area with the West Midlands branch of the British Butterfly Conservation Society. The winter of 1991-92 may well have suited this species with mild weather during its hibernation period.

MORE CAT

by D.E.A. Morton

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I was very interested in Dr Betts' article (*Bulletin* **51**: 187) *What the cat brought in*. Our cat — not all that young — disgraced itself recently by eating the abdomen and part of the thorax of a butterfly I had just set.

I had just returned from a holiday in Langkawi Island, off the North-west coast of Malaysia, and I had set a board of three males and one female *Euthalia dirtea,* the Southern archduke, a beautiful insect quite new to me. I had kept the insects in the freezer and so they had remained quite relaxed and fresh. Stupidly leaving my board on the table, I returned some minutes later to find the female, seriously mutilated, on the floor. Its pins and the glassine papers used to mount it were in place, and none of the three males also there had been touched. It seems clear that the cat, miffed I presume, at not having been fed instantly upon its entry into the house, had lifted the butterfly off its pins and eaten most of its body! I resisted the temptation with some difficulty similarly to mutilate the cat !

Our cat, like all others, I suppose, tends to pounce upon anything that moves, but I've never known it to eat an insect before. In the plane trees along our street we have a large cicada called the Greengrocer (*Cyclochila australasiae*) which the cat occasionally catches and kills, but does not mutilate, only a deep puncture showing who is the culprit. Alas, the Greengrocer is apparently scarce now, for its extraordinarily loud song makes it an easy prey to those foul introduced Indian mynahs, who gang up on it and hunt it down. I have formed the impression that the bird is maddened by the intensity of the cicada's call and must silence it at all costs! The mynahs eat them as well, of course. By the way, we Australians live in great terror of "the deadly European wasp" the sting of which is widely believed to be fatal. The wasp has only been common in Melbourne for about five years.

THE INVASION OF CLOUDED YELLOWS TO PARTS OF AYRSHIRE IN 1992 AND THE INCIDENCE OF *HELICE* IN ONE STUDY AREA

by Mark A. Hope (8139)

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In entomological terms 1992 was remarkable for the invasion of Scotland by Clouded yellows (*Colias croceus*). The first inkling I had that this could be a "Clouded yellow year" was when a colleague informed me that when visiting a bird reserve in Kirkcudbrightshire in early May, the warden there had claimed to have seen one. Several days later, Dr George Thomson telephoned to say that he had seen several from his car while commuting on the motorway between his home in Lochmaben and his place of work in Carlisle and also at Sheriffmuir, near to his former home in Dunblane — which is about as close to the centre of Scotland as it's possible to get! The following day (23rd May) I heard a broadcast by Ray Collier who was appealing for information from anyone who had seen Clouded yellows as there had already been a handful of reported sightings in the Highlands, including one from the Hebridean island of Canna.

The weather on 23rd May was very cold, overcast and extremely windy. However, very much more in hope than in expectation I decided to look in a little coastal gulley I knew of near Girvan in South Ayrshire. The gulley is rich in flowers and the surrounding land is so heavily grazed that the gulley forms a sort of natural "oasis" in an otherwise flowerless desert. As such it is quite liable to attract (and hold) any migrants.

I arrived at the site at around 2.45pm and in spite of cold, blustery conditions, saw five Clouded yellows in the space of the next two hours (three normal females and two males). Two specimens were captured at that time and later I reported my catch to George Thomson who telephoned some days later to report that he had caught three in Kirkcudbrightshire. Altogether George had seen ten or eleven specimens in a small area and had captured a male and two females (both *helice*).

Later I also captured a normal female and put her into a cage to lay (she produced around fifty ova). The eggs hatched after a week or so and the larvae began to feed up on the birdsfoot trefoil I had potted for them. Holidays then intervened and I came back from Switzerland to find that most of the larvae had pupated.

Shortly before these pupae began to hatch I spotted two Clouded yelllows within a couple of hundred yards of my house in Glengarnock (21st July). I thought at that time these were wanderers, having emerged earlier somewhere on the coast and having made their way up to Glengarnock.

I checked the gulley at Girvan again that day and found that some specimens (at least a dozen on that occasion) had emerged — obviously the progeny of those seen there earlier on 23rd May. Most of the specimens were small and there was one *helice* female and one normal female there at that date (all other specimens seen were males).

Within the next few days I began to notice large numbers of the yellows hatching in Glengarnock on the site of the former steelworks. The whole area is smothered in red and white clover, black medick, birdsfoot trefoil and other leguminous plants, all well suited as larval foodplants and providing an absolutely marvellous habitat for a variety of butterflies (including an inland colony of Grayling which I discovered almost twenty years ago — one of only two or three inland sites for Grayling in Scotland). In addition, the area is exceptionally rich in knapweed and other nectar-producing flowers.

Over the next two weeks or so I recorded over one hundred individual specimens from a fairly small area of about a quarter of a mile of disused railway line which had once served the steelworks (specimens were marked so that there was no chance of their being counted twice). Once again it was evident that *helice* was by far the commoner and I recorded 17 *helice* as against nine normal females. I should add that no special effort was made to look for *helice* — if anything, quite the opposite as it became apparent that the normal female form was less common during the period of the survey (21st July to 20th August, when the last specimens were seen). Although the area was worked thoroughly and systematically, no count of this nature can be completely accurate and undoubtedly a small percentage of butterflies were not recorded.

When working this stretch of disused railway line I met an interested passer-by who, seeing me net in hand, asked me what the strange orange butterflies were that he had been seeing. I told him what they were and on meeting him the following day, he told me that they were also to be seen along the adjoining cycle track which extends to Kilbirnie and Lochwinnoch. He had walked as far as Kilbirnie to his place of work about a mile away and had encountered them all the way down the cycle path. Time did not permit investigation of the cycle path — nor indeed of other sites in the vicinity and further afield in Ayrshire and Renfrewshire where reports were coming in of sightings of Clouded yellows. However, if the small sector I examined was representative of other similar surrounding areas then the Clouded yellow population must have numbered many hundreds, if not thousands, in this one part of North Ayrshire alone.

As time went on, I began to hear reports of people in various parts of Ayrshire who had remarked upon these strange orange butterflies. The fact that such reports seemed fairly widespread and were made by people who were not really interested in entomology led me to believe that not only were Clouded yellows widespread in many parts of Ayrshire, but were also present in sufficiently high numbers that even non-entomologists could not fail to notice them.

How this compares (for the UK as a whole) with the famous invasions of 1941 and 1947 is difficult to tell, since all the excitement this time seems to have occurred in the Midlands and northwards rather than the usual migratory "hot spots" in the south where observer coverage is far greater. Why Scotland benefited particularly can only be the subject of speculation. It would seem that early migrants may have been even earlier than usual (coming over in May) and it is possible that the peak period of their migration coincided with high winds which blew them northwards very rapidly from their more customary southern points of landfall. Whatever the reason, there can be little doubt that 1992 must have been one of the greatest "Clouded yellow years" in recorded history for Scotland.

Ford (1945) describes how he witnessed the 1941 Clouded yellow invasion on the Lizard Peninsula in Cornwall:

> "I was in Cornwall in August of that year and in some places on the Lizard Peninsula the fields were yellow with these butterflies as if scattered with flowers and a distant "white" was almost as likely to be a specimen of the pale female form *helice* as a member of the Pierinae." –

While I cannot claim that the fields around Glengarnock were "yellow with butterflies", I can truthfully say that on good sunny days when they were emerging, it was not uncommon to see up to half a dozen in the air at one time in the little area I worked during the peak of the emergence (30th July to 1st August).

Ford's book was published in 1945 and consequently there is no reference to the 1947 invasion. However, Dr Thomson (1980) cites the following figures for the famous invasions of 1941 and 1947:

" 1941 About 70 records for this year, reaching Keiss, Caithness.

" 1947 This came to be known as "the great edusa year". Dannreuther (Scot. Nat, 1948, pp. 75-6) reported some 261 records from 18 Scottish counties. Although it was said that the northern limit of the insects in that year was Keiss, there is a report of 'a strange yellow insect with black markings seen about 31 August in Orkney'. Most of the butterflies were seen in the second half of August and September, although there is as record for the 25 October in Argyllshire. Dannreuther (ibid. p. 75) reports the highest day count at Keiss in 1947 as 20." +

Both of these references to earlier invasions of Scotland suggest that the 1992 invasion, in addition to occurring earlier than previous invasions, has also been on a far greater scale than any previously recorded for

	Locality and date	*Normal females*	*helice*	*Total*
1.	Cornwall, 1865	182	8 (4.2%)	190
	Suffolk, 1928	133	17 (11.3%)	150
	Cornwall, 1941	55	9 (15.8%)	64

	Locality and date	*Normal females*	*helice*	*Total*
2.	Ayrshire, 1992	9	17	26

	Males	*Normal females*	*helice*	*Total (both sexes)*
3.	23	7	22	52

Table 1. Proportion of *helice* recorded from 1. p.237 of Ford (1946): 2. My 1992 records from Glengarnock, Ayrshire, where, in addition to the females, 115 males were recorded. 3. The progeny from my wild caught normal female.

Scotland. My own highest count for a single day was 30 when the peak of emergence occurred at Glengarnock on 31st July. Bearing in mind the limited area I worked, I can say with confidence that from subsequent reports there must have been many more in adjoining areas which were not explored.

Interestingly, the normal female from which I obtained ova actually produced more *helice* form among its offspring than it did normal females (22 *helice,* 7 normal + 23 males). Coupled with the fact that *helice* was by far the commoner in the area I studied (and having heard at least two other reports from as far afield as Gloucestershire and Kircudbrightshire which suggested a similar situation may have prevailed in other parts of the country), I am wondering about the relative proportions of *helice* to normal. Ford suggested that perhaps one in ten females may be *helice*; however, my own limited observations for this invasion certainly do not bear out that suggestion.

Table 1 summarises the incidence of *helice*: first from the data given by Ford; secondly, from my findings based on the number of females recorded in the Glengarnock area; thirdly, those reared from a normal wild captured female. Though admittedly a small sample (and therefore dangerous to draw any comparison from) it nevertheless provides an interesting comparison which other field workers might care fo follow up should the opportunity arise. My breeding result certainly presents very unusual figures, with *helice* outnumbering normal females by at least 3:1 and there being more females than males. These figures could be regarded as suspect on the grounds that the female concerned may well have laid many more eggs before she was captured. I would, however, welcome observations from anyone elsewhere who perhaps engaged in a similar study during the 1992 invasion.

Since Clouded yellows rest with wings closed and a photograph of the underside does not clearly differentiate between the sexes or *helice,* my photographs were taken by lightly anaesthetising the specimens and then opening the wings by means of forceps and gently blowing. My apologies to photographic "purists" who I hope will accept that my motive was to clearly show the insects to interested readers who are specialists in orders other than the Lepidoptera. My photographs are shown on Plate R where Fig. 3 is a normal female upperside, Fig. 4 *helice* upperside and Fig. 5 a male underside.

As I write I am presently rearing through ova from another wild-caught female (this time a *helice*) and I hope in due course to publish comparative figures for its offspring.

It will also be interesting to learn when all reports of sightings are compiled of the full extent of the invasion and the distribution of records for Scotland. At least one record has already reached me of their being seen as far north as South Uist during the first week of July (though as yet I have heard no reports of their occurrence in Orkney). Once more, any additional information would be most welcome.

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CLOUDED YELLOWS AT LOCH LOCHY

by D.T. Rolfe (6572)

Whilst on holiday in the Scottish Highlands I found three Clouded yellows (*Colias croceus*) on a small beach on the southern shore of Loch Lochy on 6.8.92. There were two very fresh males and one very tattered female which was busily ovipositing on Dutch clover (*Trifolium repens*). By watching her closely I was able to gather about 20 eggs. I then left her to carry on laying.

I was very surprised to see Clouded yellows this far north as I have not heard of any in the south where I would presume them to pass through on their way. Also the males looked as though they had not long emerged and were possibly home-bred.

Some of the eggs did not hatch but the remaining larvae are doing well on clover.

I also had a report of a Clouded yellow in Glen Roy, a few miles south of Loch Lochy, but I did not discover which sex.

ENCOUNTERS WITH AN EXOTIC — CLOUDED YELLOWS IN SCOTLAND

by A.W. Darby (5840)

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Wednesday 19th August 1992. I had been driving for about an hour to reach my intended destination, and now the car had been parked — well, abandoned — at the side of the road and net readied for action. I was about to cross over the road to look for my intended quarry, when two Clouded yellows (*Colias croceus*) distracted me. Both were fresh males, and after netting one of these I continued my quest. . . . After all, this was Killiecrankie in central Perthshire and I was looking for Scotch argus (*Erebia aethiops*)! The day was one of those rare days this summer when the sun actually shone and there were plenty *aethiops* on the wing. I saw several more *croceus* that afternoon, some Dark green fritillaries *(Argynnis aglaja*), Meadow browns (*Maniola jurtina insularis*) and Small coppers (*Lycaena phlaeas*). The place was quite unusual as there was a tremendous variety of habitats in a very small area: mixed open woodland with bracken and patches of heather, to which the *aethiops* were particularly attracted: short pasture with *Gentianella* (just over), seed heads of cowslip (*Primula veris*), ragwort, knapweed; wet flushes of *Juncus* and yellow flag which attracted a bouncy roe deer, despite my continued presence. These wet areas would have cuckoo flower (*Cardamine pratensis*) and Orange tip butterflies (*Anthocharis cardamines*) in June. (This butterfly spread here in the late seventies and has continued spreading south through Scotland, reaching the Falkirk area no later than 1990.) The presence of Clouded yellows in Killiecrankie demonstrated to me the extent of the invasion in Scotland. To climb out of a car parked near enough at random and find two on the bank next to it is an amazing coincidence!

My Clouded yellow year started on the banks of the river Allan near Ashfield, Dunblane on 7th August when I caught a tatty male by hand. Monday 10th August yielded numerous Red admirals (*Vanessa atalanta*), Small tortoiseshells (*Aglais urticae*), and a Painted lady (*Cynthia cardui*) on buddleia in Dunblane. Friday 14th August and a fresh male *croceus* was spotted at the north end of the Laighhills towards the sand and gravel pits at Ashfield. A fresh pair were caught in a field on knapweed near Ashfield. They were flying with Red admirals, Small tortoiseshells, Small coppers, Meadow browns and a Painted lady. I have heard that *croceus* was seen in the Dunblane - Bridge of Allan area in the spring, which may indicate that the fresh specimens were Scottish bred. Certainly, the weather in May and June was very favourable. Naturally, I cannot be sure that every specimen I saw in any of these localities was a different individual, but I do not hold with the views of some people who seem to go out of their way to capture every one they see to prove it. If someone says seventy specimens were seen in, say, Ayrshire, I don't have to see them all! Being near the bottom of many food chains, collecting on a reasonable scale has little or no effect on the populations of butterflies, but annihilations serve no useful purpose. By all means select one or two specimens and let the rest spread the joy naturally, not be locked away in some cabinet, row upon row, for no other purpose than to make a killing!

CLOUDED YELLOWS IN WALES AND SCOTLAND

by David Notton (5459)

Following Mike Price's article in the October *Bulletin* about Clouded yellows in Wales, I feel it would be interesting to note another Welsh record and also a recent Scottish record.

While on holiday in Powys in 1983, I saw a male *Colias croceus* flying in a cattle pasture by Llangorse Lake (grid reference SO 1226) on 11th August. This was clearly a good year for *croceus* since I also recorded a male on the 26th of the same month, nectaring at a *Buddleia davidii* bush in my back garden at Emmer Green, near Reading (grid reference SU 7177).

More recently I was fortunate enough to see numbers of *C. croceus* in Scotland, while staying at Sandyhills in Dumfries and Galloway (grid reference NX 8855). During the period 27-31.vii.19192 I made six sightings, including both sexes. Most sightings were from pasture, where the butterflies had been attracted by the abundant flowers of ragwort (*Senecio jacobaea*). This record is of interest not only because of its northerly location but also because of the numbers of butterflies seen and the date, which suggests that they may have already bred locally. It is interesting to speculate that the effects of global warming will be to allow this attractive insect to breed more frequently in Britain.

FEW CLOUDED YELLOWS ON HERTS/ESSEX BORDER

by Geoffrey Sell (5336)

Here on the Herts/Essex border (Bambers Green, Takeley, Bishops Stortford area) few Clouded yellows were seen. Oh, we had Large whites and some unusual moths came to light traps, but hardly a Clouded yellow year although I read in the December *Bulletin* that it was so in the west and north. 1947 . . . now, *that* was a Clouded yellow year! The farmers had planted a lot of lucerne, the weather was warm sunshine, they lasted until mid-October and I remember standing and looking across a moving sea of yellow over a lucerne field, the insects were so abundant. Last year summer ended about the end of July.

A CLOUDED YELLOW'S OFFSPRING FROM RHONDA REARED

by Mike Price (5897)

Further to my previous note (*Bulletin* **51**: 234) on 10th August last year I captured by hand a battered female of *Colias croceus* in very poor condition which was fluttering about on a sunny bank at my house in Stanleytown, Rhonda, mid-Glamorgan.

She was placed in a large jar with a sugar pad and clover leaves on which, over a period of eight days, she laid over 40 ova before expiring. Although some of these were infertile and eight larvae failed to undergo their first moult, I raised, on clover, 16 males and 12 females. Emergence of these occurred between 24th September and 4th October and one of the females was very atypical, being small with pale cream forewings and infused blackish-green hindwings. Thus ended my first memorable Welsh Clouded yellow year.

STAFFORDSHIRE CLOUDED YELLOWS

by Jan Koryszko (6089)

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Although I did not see any Clouded yellows (*Colias croceus*) on the wing myself, a specimen was sent to me which was taken near Stafford on 31st August 1992. This was a very worn male which looked weather-beaten.

Other reports in Staffordshire are as follows during 1992. One from Sheepwash, also one from Gnosall disused railway line, both by R.G. Warren; one at Betley, T. Mellor; one at Cheadle — a possible sighting; also one near Roughcote, along with Humming-bird hawkmoth (*Macroglossum stellatarum*), R.H. Heath and D. Heath. There were also other scattered records around the county, but on the whole in small numbers.

CLOUDED YELLOW (*COLIAS CROCEUS*) IN WARWICKSHIRE

by D.C. Neville (9535)

On a piece of waste ground at Ryton-on-Dunsmore about mid-day on 7th September 1992 while searching a small sallow bush where a larva of Poplar hawkmoth (*Laothoe populi*) and/or Pebble prominent (*Eligmodonta ziczac*) were found, my companion pointed to a Clouded yellow (*Colias croceus*) feeding on a dandelion. On netting the specimen it proved to be a worn male, the first I have seen in the county.

1992: THE IRISH "EDUSA" YEAR

by M.G. Salter (9863)

21 Seatown Place, Dundalk, Irish Republic.

Ireland does not normally have what our forefathers called "*Edusa*" years — those occasional seasons when for some reason, large numbers of Clouded yellows (*Colias croceus*) arrive in northern realms.

A glance at maps of Clouded yellow sightings shows that in Britain 52°N seems to be the northern limit of general distribution with a tendency to confine to the coast beyond that. Thus in 1983, of the 15,000 records only some 3,000 occurred north of 52° (20%), while of these, 2,000 were coastal. Since 52°N just skirts the South of Ireland, it can be inferred that Clouded yellows would be uncommon and almost exclusively coastal; indeed in 1983 there were only about 80 records from Ireland — all on the south and east coasts (although in considering Irish records it must be remembered that with only one-twelfth of the UK population there is a shortage of observers!).

Last year was an exception with a spectacular explosion of Clouded yellows all over Ireland. All the more unusual in that except for pockets along the west coast it does not by early accounts seem to have been a marvellous *Edusa* season in England, the butterflies preferring Scotland.

On 24th May I encountered some two dozen Clouded yellows in the space of an hour on the Wicklow coast at c. 53°N. The shore here is a 20km-long shingle spit with a railway running along it and backed by water meadows. The area is ecologically interesting and much frequented by bird-watchers and I was able to glean from some of these that the butterflies, along with lesser numbers of Painted ladies and Humming-bird hawkmoths — had arrived about a week previously. Later that week I met several more near Dundalk, 70 miles further north (exactly 54°N in fact).

By late July a large second generation was in evidence and I can personally report that in the Cooley Peninsula, the furthest north-east point of the Republic, Clouded yellows outnumbered all other species in at least two sites. I decided to seek other observers' sightings and try to establish a fuller record of what might be a unique happening.

With reports from over 60 observers, the pattern to emerge is of a large influx of mixed species, dominated by Clouded yellows, arriving in the south-east during a period of prolonged southerly gales and thunder-storms and rapidly dispersing along the coast while a sizeable proportion penetrated inland using as entry portals the series of long river valleys that are a feature of the geography of south-east Ireland. The earliest reports suggest an arrival date of 12th - 14th May while I have six records of small groups moving up the valleys 14th - 16th May; the rapidity of this dispersal can be shown by sightings on 16th May from two inland locations up to 200kms from the south coast; I believe that similarly the first Northern Ireland reports are for 15th May.

Thus in 1992 Ireland, which in a good *Edusa* year usually has something under 100 reported sightings, experienced a massive influx with over 3,000 reports. This is not only bigger than any previously recorded invasion but was marked by dispersal over the whole country, only two north midland counties failing to have any records: the largest prior record was in the mid-1950s with c. 2,000 total but then sightings were mainly on the south coast with only one recorded in Northern Ireland!

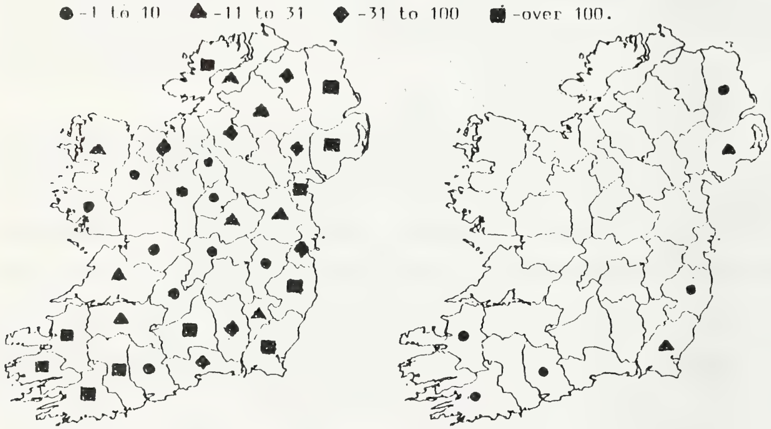


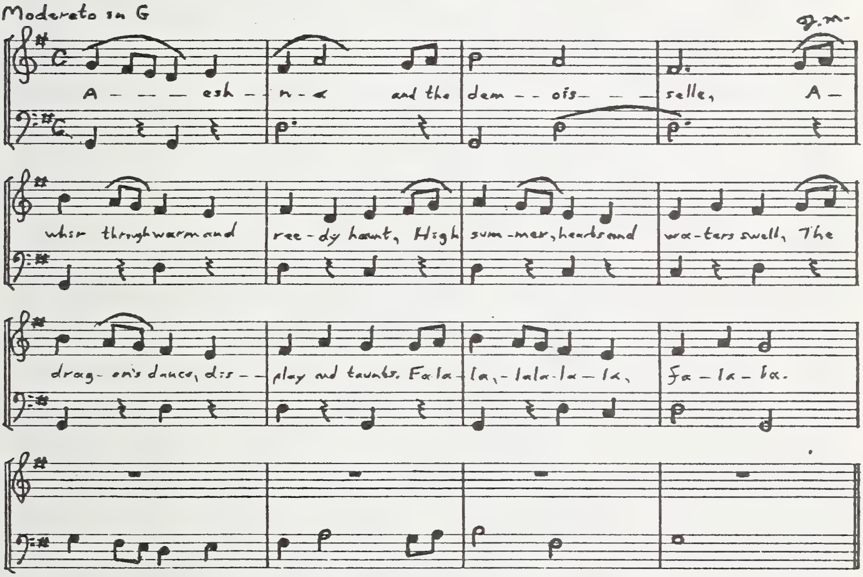
Fig. 1. Map of reported sightings of Clouded yellow (*C. croceus*), by vice-counties, in 1983 (right) and 1992 (left).

In addition to the Clouded yellow influx there was a concomitant arrival of both Convolvulus and Humming-bird hawkmoths together with a reasonable influx of Red admirals, but the most obvious accompanying species was the Painted lady and most observers reported a ratio of one of these to every six or eight yellows. It was also apparent that the species seemed to show a marked affinity for water. Nearly all inland reports were from the banks of large navigable rivers or the shores of the larger inland lochs. It is accepted that the main reason this southern species migrates north is to escape heat and drought. It may be that there is a survival imperative for it to follow — indeed breed — if possible, near expanses of water and I would be interested to learn if any similar tendency has been noted in Britain.

I would like to extend my thanks to Michael Viney of the *Irish Times* for mention in his nature column; Ian Rippey of Portsdown, for the Northern Ireland statistics; Dr Don Cotton, Sligo; finally to the 60 or so others who took the time and trouble to send me their sightings.

9.

Aeshna and the demoiselle


Moderato in G
J.M.
A — — — esh — n — a and the dem — — ois — — — selle, A —
whir through warm and ree - dy haunt, High sum - mer, hearts and wa - ters swell, The
drag - on's dance, dis — play and taunts. Fa la la, - la la - la — la, fa — la — la.

1. Aeshna and the demoiselle,
A-whir through warm and reedy haunt!
High summer, - hearts and waters swell, -
The dragon's dance, - display and taunt!

2. In mystic courtship, o'er the graves
And grasses, 'broad love's flitt'ring ghost,
Whilst deep beneath, lasius slaves, -
The sexton's secrets, innermost!

3. Drives ancient, grave, predatory,
The devil's coach, and earth made hell, -
As yet a-whir through haunts reedy,
Aeshna and the demoiselle!

Frank Marples
8226

BOOK REVIEW

Martin Listers English spiders 1678. Translated by Malcolm Davies & Basil Harley, edited by John Parker & Basil Harley. Large 8vo, 208pp, 11 plates. Harley Books, 1992. Price hardback £49.95, paperback £24.95.

How should one review a book written over 300 years ago? In the light of knowledge as was known then, or with the hindsight of modernity? No obvious contemporary reviews spring to mind, if indeed there were any.

For its day and age, *English spiders* was an advanced treatise revealing a detailed knowledge of the subject and laying the foundations of arachnology. Although no names were given, the descriptions are so accurate that the species may be readily identified today. Only about 40 species were known to Lister and he obviously must have spent hours observing them for in addition to the descriptions half of his book consists of details of their biology; their webs, their venom, their mating habits etc. Lister's original plate is reproduced, together with a modern colour plate of the spiders. An explanation of the terms he used and the modern names of the spiders are added to his text.

The other plates in this book are of works, places and people connected with Lister, for this book contains far more than a mere translation. There is a biography of Lister and a background of the scientific thought and times he lived in. This account is brought to life by the printing of correspondence between Lister and his contemporaries in the Royal Society, John Ray and Henry Oldenberg. This alone occupies 40 pages and the book concludes with a bibliography and index. A book to be enjoyed and learnt from by all entomologists and while I wish that a facsimile of the original Latin had been included, this would have made the book more expensive.

Centuries ago nearly all books were written in Latin. Many of these were later translated and published in vernacular, often within a few years, as was done with Mouffet's *Theatre of Insects* and it has surprised me that such an important work as *Tractatus de Araneis* has had to wait over 300 years for this to be done. Let us hope that the translators of this work will now commence to labour on Ray's *Historia Insectorum* and *Methodus Insectorum,* two important works too little known, or indeed readable, by the majority today.

A DELICATE MOTH ON HERTS/ESSEX BORDER

by Geoffrey Sell (5336)

On 21st September last year (1992) I had a Delicate moth (*Mythimna vitellina*) in my light trap at Takeley, near Bishop's Stortford.

PREDATION OF *AESHNA CYANEA* BY *VESPULA VULGARIS*

by Michael E.N. Majaerus (4027)

Department of Genetics, Downing Street, Cambridge CB2 3EY.

At 10.30am on a sunny morning, 11th September 1992, in my garden just outside Cambridge, my attention was attracted to a rapid dry rustling sound, coming from a patch of long grass under some fruit trees. It sounded like the vibration of dragonfly wings, and so it proved. On investigation I found a Southern hawker dragonfly (*Aeshna cyanea*) struggling in the grass, being attacked by a single Common wasp worker (*Vespula vulgaris*). The wasp was moving around the dragonfly's head and prothorax. It stung the dragonfly twice as I watched, although I suspect these were not the first stings. I watched for a few minutes, collected a camera, took some photographs and then continued to watch. The dragonfly's struggles became weaker and within about fifteen minutes the dragonfly could be pronounced dead. The wasp then moved around the corpse for perhaps another minute before flying back to its nest. The dragonfly's body was not retrieved by the wasps, still being in the same place at 8.00pm. (See Plate S, Fig. 7.)

The incident took place 12 metres from the wasp's nest in a grass bank. Hawker dragonflies are frequent visitors to the garden and are often seen patrolling over the front lawn between the grass bank and the fruit trees. The events that led up to the attack are not known. It is possible that the wasp perceived the dragonfly to be a threat to its nest. It seems less likely that the wasp killed the dragonfly for food as the corpse was neither moved nor consumed in situ. The alternative is that the dragonfly attacked the wasp and lost. Neither Corbet *et al* (1960) nor Miller (1987) note predatory wasps as predators of Odonata.

Comments on this observation would be welcomed by the author.

REFERENCES

Corbet, P.S., Longfield, C. and Moore, N.W. (1960). *Dragonflies (New Naturalist Series).* Collins, London.

Miller, P.L. (1987). *Dragonflies: Naturalists' Handbooks 7.* Cambridge University Press, Cambridge.

OBSERVATIONS ON THE WOOD WASP *UROCERUS GIGAS*

by Michael E.N. Majerus (4027)

Department of Genetics, Downing Street, Cambridge CB2 3EY.

From 21-23rd August 1992, I was involved in a Field Studies Council weekend course at Juniper Hall, Mickleham, Surrey. Arriving at the hall I was alarmed to see two huge branches had fallen from one of the magnificent cedars in the grounds. These, I was informed, had fallen at 4.00am the previous Sunday (16th August) for no apparent reason, there being no more than a light breeze and drizzle.

On investigating the branches more closely, my attention was almost immediately attracted to a loud buzzing and I saw an extremely large female *Urocerus gigas,* commonly called the Greater horntail, flying to one of the branches. She landed on it and moved slowly over the wood, both on barked regions and the bare broken wood. She used her antennae to investigate the wood before selecting a site on one of the broken regions where she began to oviposit, raising her abdomen and curling her needle-like black ovipositor under her before sliding it slowly, but without obvious effort, perpendicularly into the wood.

Over the weekend, I and a number of people on an insect photography course, saw many more females of this impressive wasp, ovipositing both through bark and into the exposed wood where the branches were broken. Up to six females were seen at one time. The females varied considerably in size, the largest being almost eight centimetres long (including the ovipositor sheath, but excluding the antennae) and the smallest less than four centimetres. They were active in sunshine, cloud and even light drizzle, only taking to shelter in heavy rain. In some cases females remained with the ovipositor into a hole for over an hour. Because of the photographic course numerous pictures were taken of ovipositing and resting females, flash being used. One of these is reproduced on Plate S, Fig. 6. The flash light did not seem to disturb the insects. No males were seen, these, according to Chinery (1973) usually remaining high in the canopy.

REFERENCES

Chinery, M. (1973). *A field guide to the Insects of Britain and Northern Europe.* Collins, London.

HELP NEEDED

The BBC Natural History Unit is currently making a major six-part series on Insects, due for transmission on BBC1 at the end of 1994 or early 1995. As part of the series, we are very keen to film those events where insects (of any sort, pest or non-pest species) suddenly occur in very large concentrations, either due to population explosions, or insects on mass migration. As these events are rarely predictable, we can only hope to get word of such things as they occur, and try to get there in time to film them.

If any members come across a situation that they think may be of interest any time over the next two years, I would be extremely interested to hear of it. I (Rupert Barrington (6023)) can be contacted during the day on 0272-732211, extension 4167, or evenings on 0272-427345.

THE BUG HUNT

by Richard A. Jones

13 Bellwood Road, Nunhead, London SE15 3DE.

Given even the tiniest bit of encouragement, children find insects completely enthralling. The idea that the beast crawling about in their plastic tube is "ladybird food" (an aphid), used to be eaten whole as a rustic remedy (a pill louse) or not really a wasp at all (a hoverfly), fills them with a glee that bubbles over when they subsequently instruct mummy and daddy with their new-found knowledge. Mummy and daddy often then become infected with a similar enthusiasm, sceptically asking ". . . does what to my daffodils?" when presented with *Meredon equestris,* the narcissus fly, or ". . . but I thought ladybirds were all red and black!"

When recently asked to run some sort of "insect identification stall" at a local fête, it was immediately obvious that it was the children who would be most interested, and who would get most out of it. But when we first planned "The Bug Hunt" we had no idea just how much excitement would be generated.

THE FIRST BUG HUNT

Nunhead Cemetery is a rambling, overgrown Victorian cemetery in South-east London. And although this part of the capital is liberally sprinkled with green open spaces, it has a woodland charm almost unparalleled in the area. It became so overgrown and unmanageable that for a long period it was left unused and in many parts grew into impenetrable woodland. When it was bought (by special Act of Parliament) by the London Borough of Southwark, the most wooded and overgrown half was set aside to be the responsibility of the parks department, while the remainder, what little of it there was, was maintained for burials. The cemetery is surrounded by a huge wall, and the fact that the gates are opened only for limited times each Wednesday and weekend means that it has become a real haven for wildlife and is hardly trodden at all unlike many of the barren stretches of grassland comprising the other parks around.

An informal group of interested people started the "Friends of Nunhead Cemetery" (FONC) ten years ago, to do conservation work by clearing some of the sycamore saplings and keeping the paths open and to promote the importance of the cemetery in a historical perspective. Several people were already studying the plants and birds when I moved into the area, and as soon as I joined FONC, I made my interest in entomology known to them.

In 1989, in order to let the world at large know what was going on at the cemetery, and to generate more local support, the idea of an Open Day was mooted by the Friends. Various local history societies had stalls, Southwark Parks Department had a marquee to show how they intended to manage the "park" part of the cemetery; elsewhere, old photographs and monuments were displayed. There were guided tours of some of the historically important and interesting documents. The construction of bird-boxes and bat-boxes was demonstrated. The tree survey was outlined. Tea, cakes and other refreshments were available and a jolly time was to be had by all. But for the children, there would have been very little of interest, apart from badge making. Luckily, there was a most astonishing challenge for them — *The Bug Hunt!*

The instructions were simple:

(1) collect a plastic tube from the stall
(2) go off and collect any "bug", be it insect, arachnid, worm, slug, snail or woodlouse
(3) bring it back to the stall where the resident expert (yours truly) would identify the capture, and
(4) receive a glamorous certificate stating that so-and-so had found . . . whatever it was . . ., Signed and Dated in authoritative style by the Bug Man. Just the thing to put on the bedroom wall or show the teacher.

We were mobbed! (See Plate Q, Fig. 1.) By the end of the day we had run out of the 150 certificates and I was hoarse from explaining "how exciting, you've found a greenfly . . . did you know that ladybirds eat greenflies?"

WHAT WAS FOUND?

The most interesting things turned up. Armed with really rather inadequate collecting devices (simply plastic pill boxes), butterflies, hoverflies, ichneumons, even bumblebees and wasps were readily captured and proudly presented for identification. All manner of creeping, crawling, flying, hopping or wriggling creatures were found. I had forgotten just how keen is the eyesight of young children. Mites, minute beetles and flies, spiderlings and aphids were common prey. Slugs, worms and snails made popular trophies, and several tubes were declared out of commission due to being heavily slimed. But whatever was found, it was given the most devout respect by its captor, and even the humblest of creatures acquired the greatest significance when solemnly inscribed onto the certificate.

Having lived in the area for seven years, I have been a regular visitor to the cemetery in search of insects and have been rewarded by the most unusual things — the fourth British locality for the beetle *Synchita* separanda and the second British locality for its near relative *Cicones undata*. Speckled woods, Commas, Small tortoiseshells, Peacocks, Red admirals, Painted ladies, Holly blues, Orange tips, Large and Small whites are all common, and there are (so far) ten species of ladybird.

Nevertheless, I was surprised with a whole range of unusual insects that I had not before encountered there. One participant was very excited when I announced that I was going to take her beetle for further examination. It was *Ochina ptinoides,* a woodworm-like beetle that breeds in dead ivy. Two types of hoverfly also caused a stir, but would not perform on cue and devour aphids.

After three years of Bug Hunts in the cemetery, I ought to be able to predict what will turn up, but every year is different. Nevertheless, armed with a few basics, it is easy to create a fun and informative day for the children and their families. If you want to engender in your local school-children an interest in natural history, I recommend The Bug Hunt as the perfect means.

MATERIAL FOR A BUG HUNT

1. **Collecting tubes and boxes**

For the benefit of younger children who may be less dextrous and older children who are more vigorous, collecting tubes should be of plastic and not of glass. They should be large and easy to open and close. Plastic pill boxes are good, but so far I have found the ideal containers to be the large plastic screw-top tubes which haberdashers sell buttons from. These are about six inches long and just over an inch in diameter, made of relatively soft clear plastic.

2. **Certificates**

The certificates are easily created. An old share certificate, duly attacked with correction fluid and Letreset looks purpose-made when photocopied. The more elaborate the swirling decoration, the more authority the paper seems to hold in the children's minds.

3. **Visual aids**

A box of set specimens has two drawbacks — heavy fingers are apt to apply just too much pressure to the glass, and the notion that all entomologists kill the things that they study is a moral concept difficult to justify to the young, and even to some of the old! Photographs pinned to a boards are far more striking. The odd natural history wall chart, or pictures cut from magazines further enhance the display.

4. Display cage

A glass aquarium loaded with flowers in a jar of water serves as a releasing tank so that every one can see what has been found. But captures should be released fairly quickly, as they soon tire themselves out struggling against the glass or the netting top, especially if the day is hot or they are in direct sunlight.

5. Books and identification guides

A fair sprinking of identification guides is helpful, not only in jogging the memory but also in showing what caterpillars or nymphs turn into. As no child is going to be persuaded that a slug, snail or worm does not constitute a bug, identification guides should be available for these and other non-insect groups such as woodlice, centipedes, millipedes, spiders and galls.

6. The crib sheet

By touring the area the day or two before, one can get a fair idea of what is about, and what is likely to be found. A short list with Latin names added for easy reference means that assistants can be deputised with or without detailed knowledge. And anyway, I can never remember the Latin names of ladybirds!

WHERE TO HOLD A BUG HUNT

Almost any approximately natural area is suitable: local nature reserves, commons, woods, fields, and yes, even cemeteries. As long as there is somewhere for the hunt to take place amongst long grass, shrubs and trees, without doing real damage to the habitat. Even a village fête held on the village green will have some suitable area of ''rough'' in which the eager participants can rummage for that elusive bug.

THE COCKAYNE RESEARCH FELLOWSHIP

Applications are invited to *The Cockayne Research Fellowship* for awards to support original research on variation in British Lepidoptera. Awards are limited to a maximum of £1,000 per year and, depending on progress, may be renewable annually for a maximum of three years. Applications are welcome from amateur and professional lepidopterists alike. Projects must concern original research on variation (genetic, phenetic, taxonomic, geographical, or phenological) affecting one or more species of Lepidoptera within the British Isles.

For further information and an application form please write to the Trustees of the Cockayne Research Fellowship, c/o The Keeper of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD.

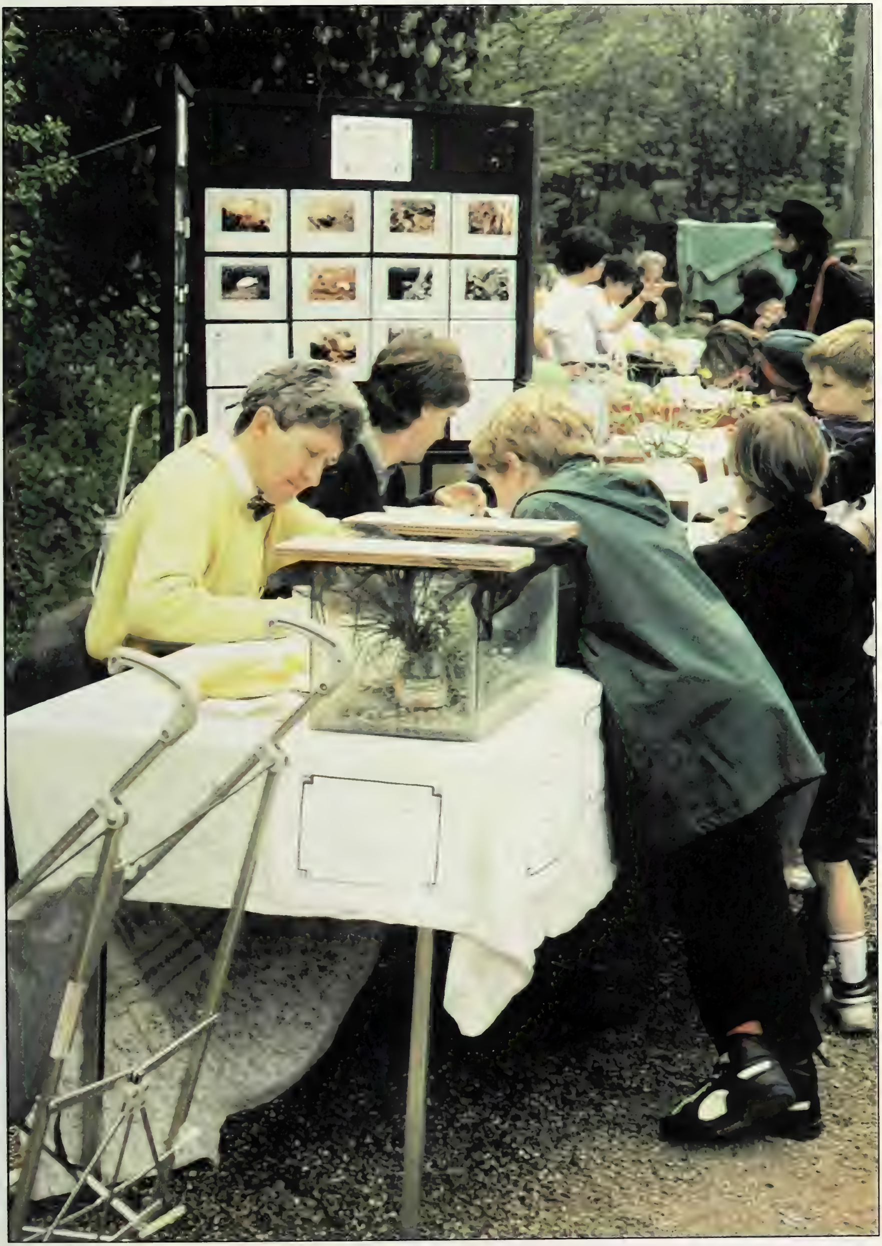
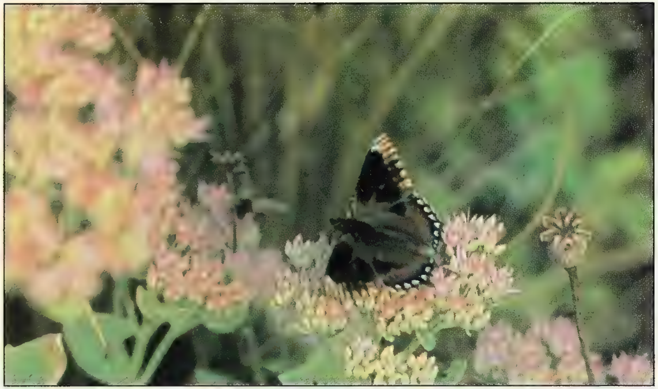
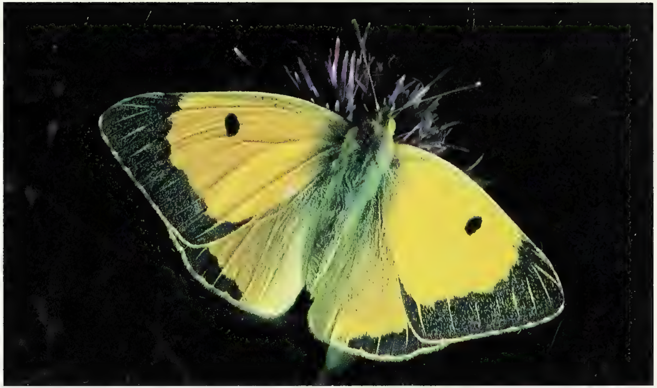


Fig. 1. The Bughunt. Youngsters waiting for Richard to identify their catches.

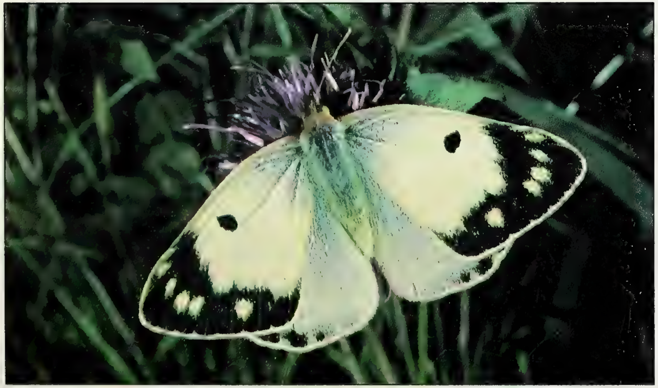
PLATE Q



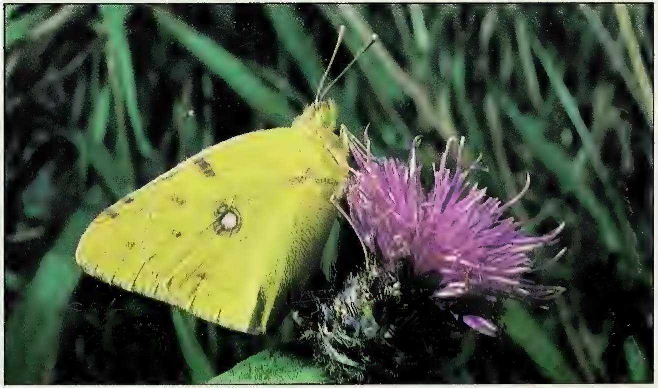
▲ Fig. 2. Extreme aberration of Small tortoiseshell, *Aglais urticae*.
(Photo: C.Grey-Wilson)



▲ Fig. 3. Normal female (upperside) of Clouded yellow, *Colias croceus*.



▲ Fig. 4. Female ab. *helice* (upperside) of Clouded yellow, *Colias croceus*.



▲ Fig. 5. Normal male (underside) of Clouded yellow, *Colias croceus*.

PLATE R

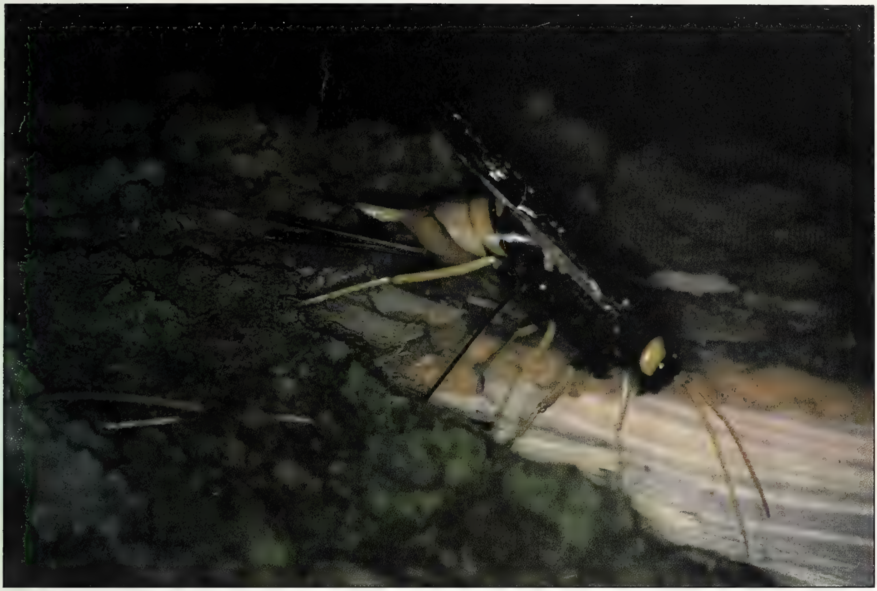


Fig. 6. Wood wasp, *Urocerus gigas,* female, looking to lay her eggs.

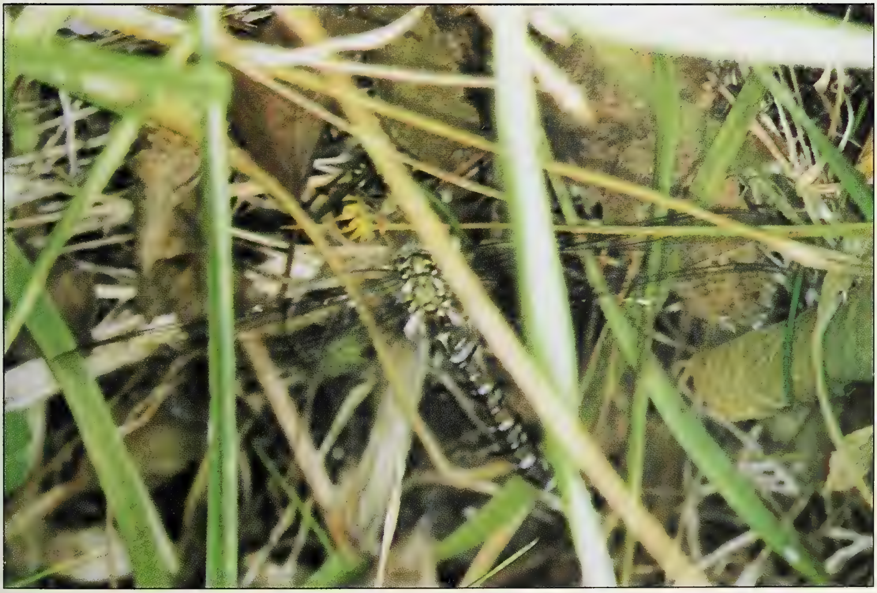


Fig. 7. Common wasp, *Vespula vulgaris,* attacking Southern dragonfly, *Aeshna cyanea.*

PLATE S

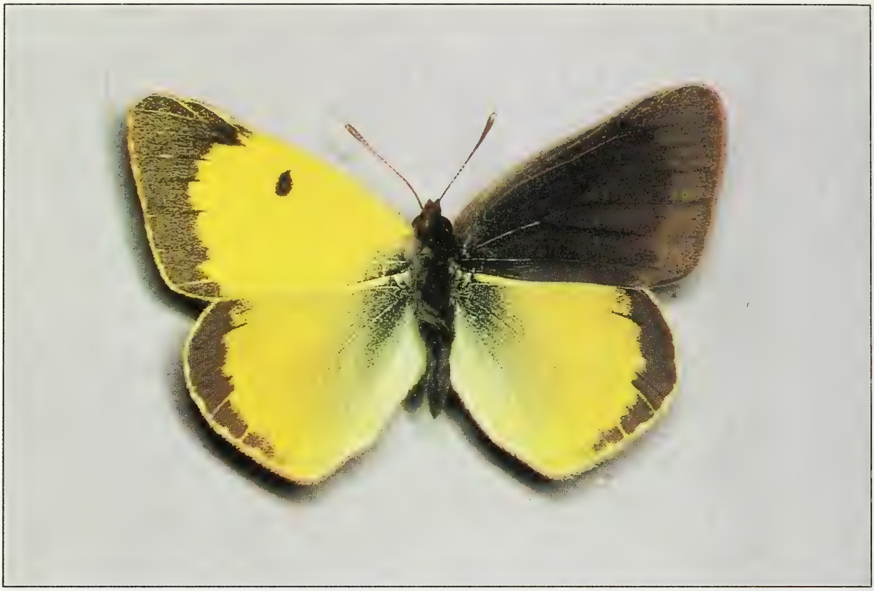


Fig. 8. Upper side of partially melanic Clouded yellow, *Colias croceus*. *(Photo: Richard Revels)*

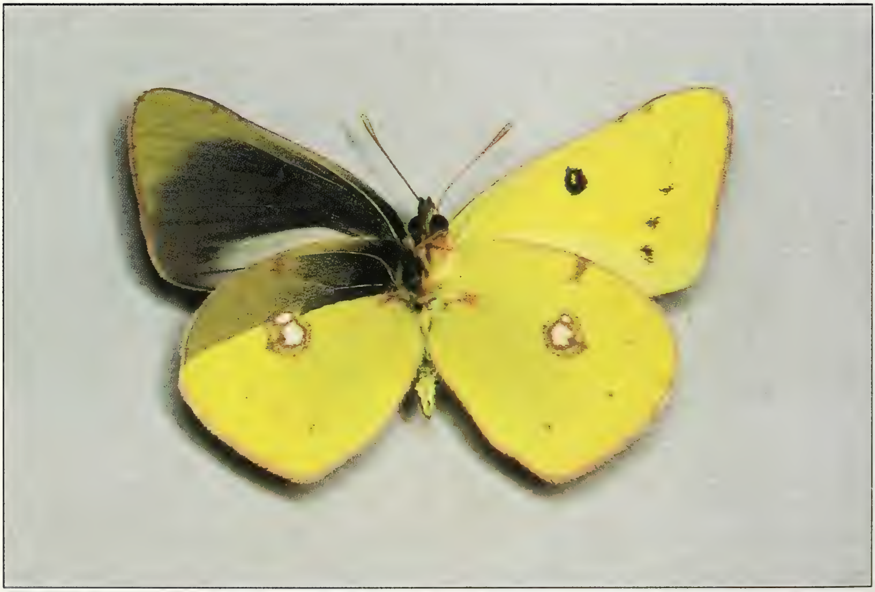


Fig. 9. Underside of partially melanic Clouded yellow, *Colias croceus*. *(Photo: Richard Revels)*

PLATE T

AN EXTREME ABERRATION OF THE SMALL TORTOISESHELL, *AGLAIS URTICAE*

by P.W. Cribb (2270)

I have received a slide photograph of an extreme aberration of the Small tortoiseshell taken by the well-known botanist, Dr Chris Grey-Wilson on *Sedum spectabile* in his garden at Fenstead End, Suffolk in September. The black suffusion occurs in the forewings instead of the hindwings as in ab. *conjuncta* Meuberg. The outer margin is also bleached. The specimen is shown on Plate R, Fig. 2.

A PARTIALLY MELANIC CLOUDED YELLOW

The example of the Clouded yellow (*Colias croceus*) shown on Plate T, Figs. 8 and 9 emerged from a chrysalis bought at our Exhibition last October. I should like to thank John Payne, who brought it to my attention and Richard Revels who photographed it and in whose collection it now is. (Editor.)

BOOKS RECEIVED

Acta Amazonica. Vol. 21. 433pp. Paperback. This is a special supplement to the Journal of the Amazon Research Institute and deals in the main with the insects collected during the Maraca Rainforest Project. Papers cover Diptera, Isoptera, Coleoptera, Homoptera, Trichoptera, Mantidae, Psocoptera, ectoparasites and Lepidoptera. They are written in Portuguese or English. For copies contact Dr J. Hemming, c/o Royal Geographical Society, Kensington Gore,. London SW7 2AR (price not known). PWC

Wildlife After Gravel by Nick Giles. 135pp. Hardback. Colour illustrations. Game Conservancy Ltd in association with ARC Ltd. 1992. Price not stated.

This is a joint effort by Game Conservancy Ltd and ARC Ltd, the latter being in the business of gravel extraction. The book records twenty years of research at a restored gravel-pit near Great Lindford in Buckinghamshire. It is intended to convey the benefits of digging big holes in the ground which then fill with water and are subsequently treated and managed in the interests of wildlife, in particular birds and fish — both of interest to the sporting fraternity. These places also provide habitats for invertebrates though not primarily managed for such fauna and generally speaking the end result is so much better than filling the holes with waste material and capping with second-rate soil as has so often happened. The problems of methane and low fertility mean that filled sites have little economic or ecological value. Currently I have been involved with a major project in Middlesex at the Bedfont Lakes which was a major gravel extraction site. Today it is being formed into one of London's largest parklands with several lakes and an island nature reserve while the re-contoured land is being planted with native trees and shrubs and sown with wild flowers. Anyone who may be involved in assisting or advising in such projects will find this publication very useful. The address of Game Conservancy Ltd is: Fordingbridge, Hampshire SP6 1EF. PWC

EXCEPTIONAL DATES FOR DRAGONFLIES AT ALVECOTE POOLS NATURE RESERVE (SSSI) 1991/1992

by Brian Mitchell (8068)

Reserve Recorder, Alvecote Pools NR (SSSI)

A study of the 1991 season's Odonata from Alvecote Pools NR (SSSI), indicates that nine of the then 18 species recorded on the reserve achieved later dates than in 1990, some by very large margins: *Calopteryx splendens, Lestes sponsa, Ischnura elegans, Coenagrion puella, Erythromma najas, Aeshna grandis, Aeshna mixta, Libellula quadrimaculata* and *Sympetrum sanguineum*. Two of these, *E. najas* and *S. sanguineum,* were only recorded for the first time in 1990. However, when comparing the final dates with those in C.O. Hammond's chart of flight periods (Hammond: *The Dragonflies of Great Britain and Ireland,* Harley Books, Colchester), four of the nine species achieved exceptionally late dates. These were *C. splendens* and *L. sponsa* both on 1st September, *E. najas* on 3rd September and *S. sanguineum* on 22nd September. Sightings of single *C. puella* on 15th and 19th September reach *beyond* the exceptional dates set out by Hammond.

Two species appeared exceptionally early in 1992: two *A. grandis* were seen on 11th July (BRM) and an emergence of dozens of *S. striolatum* on 14th June (HCM). The previous earliest records for these species on the reserve were 20th June 1989 and 22nd July 1990. *E. najas* was also noted at its earliest date in three years on 17th May (HCM). The first *S. sanguineum,* a female with a damaged hindwing, was recorded very early on 29th June (BRM) and *A. mixta* on 23rd July , which is extremely early (KMcG/BRM).

The most remarkable late date of 1992 was of *L. sponsa,* which had already achieved its earliest ever emergence on 19th June (BRM). One was closely observed on 16th September (BRM), beating the 1991 record referred to above by 15 days.

Recorders: HCM = Harry Morrall; BRM = Brian Mitchell; KMcG = Kevin McGee.

PHILATELIC ENTOMOLOGY, THE NAME ON THE STAMP

by A.E. Coles (9729)

31 Dalewood Avenue, Sheffield, South Yorks S8 0BG.

There is something fascinating about insects and, of the teeming millions of species, none are more fascinating than the butterflies whose sheer beauty has attracted attention for as long as man has been on this planet. What more beautiful creatures could one find to collect? But why collect them on stamps?

In my own case the reasons fall into two broad categories and I am never sure which takes precedence. Firstly, I am over-age, over-weight and over-addicted to sedentariness and these attributes do not lend themselves to chasing around with a butterfly net or even to go grubbing among vegetation hunting for eggs or larvae; secondly, although I accept the argument that collectors/breeders are not a cause of the cataclysmic decline in butterfly populations which have occurred during the past fifty-odd years, I cannot but feel that the situation is so desperate that all collecting for its own sake should be foresworn. As William Blake put it: "Kill not the moth or butterfly,/For the Last Judgment draweth nigh."

Stamps seem to be an acceptable compromise where I can indulge my interest in these fascinating creatures without undue physical effort while at the same time gratifying the collector's instinct which seem to be in all of us, without encouraging the indiscriminate import of rare overseas species. To date, by my reckoning, about 800 different species of butterfly and 250 species of moth have appeared on stamps, some only once, others up to 30 or more times, from all over the world. The number is greater if one includes appearances on items which have philatelic connectons but are not generally regarded as valid postage-stamps — "naughties" as they are usually called by stamp-collectors. These include many types of issues: by rebel administrations, by semi-autonomous states with no independent postal services, by inland holiday resorts as souvenirs and to cover the cost of transporting mail to official mainland post offices, by Venture Scouts and other groups organising postal services in their area, and by many other "authorities" with no postal services at all but with an interest in exploiting unwary collectors. The boundary-line between "naughties" and legitimate stamps has, however, become blurred in recent years with some countries issuing all kinds of expensive souvenir editions or special sheets which are clearly aimed at the pockets of collectors rather than at postal usage. Naughties are not necessarily of inferior quality: some genuine stamps depicting Lepidoptera are hardly worth a second glance while some sets issued by island resorts and illustrated by Gordon Beningfield, Brian Hargreaves and others are of the superb quality one would expect from such artists.

Further, while many sets of naughties depict species which are not indigenous to the country of origin (so that one finds *Morphos* and Birdwings appearing on issues from the Persian Gulf), so do some sets of legitimate stamps. For myself, I compromise between the genuine and the naughty and collect either provided only that they offer good pictures of indigenous species.

There are disadvantages, of course, compared with collecting the actual creatures, exemplified in a little story about a professor of Entomology who was asked by one of his students to identify a butterfly on a stamp. He closely examined the picture through his pocket-lens, then, turning the stamp over, began to examine the back. Whether true of not, the story highlights the main problem faced by those who collect butterflies on stamps: how does one identify subjects on stamps if they belong to groups in which different species are superficially almost identical, when one has only pictures showing "open-wing" postures and the ventral aspects show only gum?

About ten percent of the stamps concerned do not carry the name of the subject species in any form; a similar proportion bear vernacular names in the language of the country of issue; and the rest give the names in Latin binomials (not always correctly spelled), sometimes adding the author and an indication of the sex of the subject (from which, I should point out, no conclusions should be drawn as to whether the species exhibits sexual dimorphism). With the first two of these broad divisions, one would expect difficulties such as those experienced by our professor and there is sometimes no alternative but to wade through the reference books for look-alikes; but even with the third division there are often problems as over 25% of the names disagree with generally accepted modern nomenclature.

The majority of stamp pictures, as I have said, portray open-wing specimens (although, in recent years, there has been a welcome move towards more natural postures as in Gordon Beningfield's superb designs for the 1982 Great Britain set) and many of the pictures have, clearly, been taken from books where butterflies are generally shown with wings extended to give a full-frontal view. (Occasionally, things go wrong and we are given the underside of the wings with the top-side of the body!) Sometimes it is possible to identify the book concerned as is the case with a set issued by Surinam in 1983 which used illustrations from Maria Merian's *Metamorphosis Insectorum Surinamensium,* which was first published in 1705 and to which I shall refer again later. More recent publications used as source material include H.L. Lewis's *Butterflies of the World,* published in 1973 and a useful aid to the philatelic lepidopterist, from which came the "models" (with added background foliage) for stamps issued by Gambia (1989), Ghana (1990), Guyana (1990 and 1991) and Sierra Leone (1989).

There can, of course, be no serious objections to this practice and, indeed, we would welcome more of Merian's work on stamps, particuarly as many of her illustrations show subjects at rest with wings folded so that the undersides are displayed. But there is a snag in that the stamp artists copy not only the pictures but also the captions used in the books; and, as some of the books were published many years ago, the names given are often invalid homonyms, junior synonyms, subjective synonyms or even "erronyms". These can be confusing but, when followed up, they can throw some interesting sidelights on the history of butterfly nomenclature; and it is this aspect of lepidopteral philately that I find most interesting.

Surprisingly few errors in captions (about two dozen at most, I should say) are sheer "howlers" in which the captions name species different from those depicted. This small group is probably divisible into "production" errors, such as the transposition of two names between stamps, and errors which, almost certainly, originated in the source books. In the latter category, the mimetic relationship between *Danaus chrysippus* and *Hypolimnas misippus* (two very popular stamp subjects) has caused each to be named as the other more than once (the species can be distinguished by differences in venation and the pattern of spots on the hind-wings without turning the stamp over!). Such errors are more likely to be the fault of the source-book than the artist or the printers. Similarly, *Apatura iris* and *A. ilia* have twice been the victims of mutual mix-ups. As an example of a probable "production error", in 1973, Malawi had an issue featuring *Amauris ansorgei* but captioned as *Euphaedra zaddachi* — a mistake which was rectified by the hurried re-issue of the same stamp with the correct name. The prize in this category, however, must go to St Thomas and Prince Islands which, in 1979, issued a set of six butterfly stamps with five naming the wrong species and the sixth captioned with a very out-dated synonym; what went wrong on that occasion is hard to imagine.

We can distinguish between these "howlers" and confused nomenclature arising from errors of judgement made by taxonomists of earlier years. Considering the rate at which new species were being discovered in the nineteenth century and the absence of modern methods of disseminating information, it is not surprising that serious misunderstandings sometimes plunged the developing systems of nomenclature and classification into confusion which took years to resolve. One of Merian's pictures in the Surinam set already mentioned is captioned as *Metamorpha dido,* a name which could not have been in the 1705 edition of her book and which we must assume was, together with the names given to other subjects in the set, added to a later edition. The species *dido* Linnaeus was selected by Scudder in 1875 as the type-species of

Philaethria Billberg, 1820. In 1881, however, Godman & Salvin in a work on Central American butterflies, treated *dido* as a member of genus *Metamorpha* Hübner 1819, and, in 1894, Kirby designated it as the type-species of that genus. These were serious errors as *Philaethria* belongs to the Heliconiidae and *Metamorpha* to the Nymphalidae; but the errors became rooted into the literature and were not corrected until 1907 when they were pointed out by Stichel. Although that was over 80 years ago, stamps captioned *Metamorpha dido* are still being issued, the latest coming from Cuba in 1989. Several of the half-dozen stamps from different countries which perpetuate this error portray very similar-looking subjects, suggesting that they all came from the same source. A pointer to the origin of the error can be seen on other stamps which depict *Siproeta stelenes,* a Nymphalid which mimics *dido*; stamps from Cuba, Grenada and Salvador caption it as *Metamorpha s.,* by which name it is often known although the subjective synonym *Siproeta* Hübner 1823 is generally preferred. Did Godman & Salvin confuse *dido* with *stelenes* because of their outward similarities?

The European scarce copper, *virgaureae* Linnaeus, appears on three stamps, each time with a different generic name: in 1959 Hungary named it *Lycaena v.,* in 1960 Rumania called it *Chrisophanus v.* and in 1977 Mongolia named it *Heodes v.* For some of this confusion we can blame no less a personage than Jacob Hübner who first published the name *Chrysophanus* in 1818 to cover a group of New World Hairstreaks and then published it again a year later to cover the Holarctic ''Coppers''; while, to make matters worse, other authors — in particular Staudinger & Wocke, in *Der Lepidopteren des Europaeischen faunengebiets,* applied the name *Lycaena* Fabricius 1807 to the Holaractic ''Blues'' (although *phlaeus,* the type-species selected in 1828 was clearly a ''Copper'') and listed the Coppers under *Polyommatus* Latreille 1804. The resulting confusion was to last until the 1920s and was not thoroughly cleared until a 1959 ruling by the I.C.Z.N. banned the name *Chrysophanus* so that its use could no longer be justified on grounds of priority for either of the groups to which Hübner had assigned it. *Lycaena* is a valid genus for the Scarce copper but generally preferred is the monotypic *Heodes* Dalman 1816. Another aspect of this mix-up between ''Blues'' and ''Coppers'' was still around in 1962 when Bulgaria issued a set depicting butterflies and moths with pictures clearly taken from an old book: one of the subjects is Meleager's blue, captioned as *Lycaena meleager,* a ''Copper'' name. This species came out of the fray as *Meleageria daphnis,* the generic term being published by Sagarra in 1925 and the specific term harking back to Denis and Schiffermüller in 1775, and that name appears on stamps issued by Hungary in 1966 and Rumania in 1969.

Another area of confusion goes back to Linnaeus who, it seems, treated specimens of an Oriental butterfly which came to be known as

Danaus genutia Cramer 1779 as conspecific with the familiar Monarch, *Danaus plexippus,* named by Linnaeus in 1759. Despite Cramer's naming of *genutia* and the publication by Moore in 1880 of a new genus, *Salatura,* with *genutia* as its type-species, there must have been a number of books which confused the two species. Certainly, stamps issued by Cambodia (1969), North Vietnam (1976) and Palau (1988) portray *genutia* but all three are wrongly captioned as *plexippus.* New Caledonia issued a stamp in 1967 which also shows *genutia* captioned as *plexippus* but the error in that case has a subtle twist: while *genutia* is not found in New Caledonia, *plexippus* has spread westwards across the Pacific to those islands and has become established there. The stamp was probably intended to show *plexippus* — but got the wrong picture with the right caption!

We are now moving out of the category of misunderstandings and into the region of synonyms with which stamp captions abound. The very first stamp to carry a picture of a recognisable species of butterfly set the pattern in this respect: it was issued by Sarawak in 1950 and portrayed Rajah Brooke's birdwing captioned as *Troides brookiana.* Whether *Troides* Hübner 1819 or *Trogonoptera* Rippon 1890 (of which *brookiana* Wallace, is type-species) is ''correct'' is, of course, arguable as they are subjective synonyms; but the latter is in common use nowadays and the use of *Troides* suggests an old source.

A profusion of synonyms leads, inevitably, to butterflies appearing on different stamps with different names, some acquiring as many as four. A particular favourite of mine in its category is the Yellow pansy, which ranges across much of Africa and Southern Asia. The species was named as *hierta* by Fabricius in 1798 from Asian specimens and the African version was named as *cebrene* by Trimen in 1870. There is some difference of opinion as to whether the African taxon is of specific or sub-specific rank but general agreement that the nominative form of *hierta* is Asian. There is also some difference of opinion as to the generic name it should hold, authorities — and stamp captions — being published by Hübner in 1819. Thus it comes about that in its twelve appearances on stamps from African countries, four stamps name it as *P. hierta* (two adding the sub-specific *cebrene*), two name it as *P. cebrene,* five name it as *J. hierta* (two adding the sub-specific *cebrene*) and one names it as *J. cebrene,* the single Asian stamp issued by Laos in 1965 perversely names it as *P. cebrene*! There is similar confusion in other species of the genus on stamps from Africa, America and the Pacific; we can, with some confidence, expect that it will continue in captions despite the fact that, in the most recent revisions, *Precis* is regarded as the junior synonym of *Junonia.*

It is not only exotic species which suffer from nomenclature confusion; some of the best-known of European butterflies receive similar treatment. A set from Poland in 1967 included four: the Peacock (*Inachis io*) was named as *Vanessa io,* the Small tortoiseshell (*Aglais urticae*) as *Vanessa urticae,* and the Camberwell beauty (*Nymphalis antiopa*) as *Vanessa antiopa*; but the Red admiral (*Vanessa atalanta*), the only one of the four included in *Vanessa* nowadays (and the type-specimen of the genus) was captioned as *Pyrameis atalanta.* Hübner published *Pyrameis* in 1819 but no type-specimen was selected until 1875 when Scudder chose *atalanta*; this action made *Pyrameis* the junior objective synonym of *Vanessa* Fabricius 1807 and effectively sank it as a valid name. There seems to be no possible explanation of the use of *Pyrameis* in the context of this set.

The Southern festoon seems fated not to appear on stamps with the name by which it is now (after some vicissitudes) generally known. Fabricius named its genus as *Thais* in 1807 but that name already belonged to a group of molluscs and it was replaced by *Zerynthia* Ochsenheimer 1816. The specific name of the Southern festoon is *polyxena* D. & S. 1775 but, on its first appearance on a stamp from Czechoslovakia in 1961, it was captioned as *Z. hypsypile,* a name given by Fabricius in 1777 and therefore junior to *polyxena.* Its second appearance was on a Hungarian stamp in 1966 when it was named *Z. hypermnestra,* a name used by Linnaeus for a Satyrid butterfly and thus an invalid homonym. Two subsequent appearances on stamps from St Thomas and Prince Islands and Bulgaria have been captioned as *Z. polyxena.* However, an earlier name for the genus had come to light during the 1920s and its history is of some interest. A naturalist by name Rafinesque compiled a catalogue of all known flora and fauna and published it in Palermo in 1815; then, taking all the copies with him, he set off for Paris to seek fame and fortune. Unfortunately, Napoleon had just escaped from Elba and was also on his way to Paris and the unlucky naturalist ran into some rather unruly elements of the army which was gathering to support the returning exile. He escaped with his life but lost most of his stock; only a few copies of his book survived the skirmish and a century went by before his contribution to butterfly nomenclature was brought to notice and it was recognised that *Parnalius* Rafinesque 1815 pre-dates *Zerynthia* by a year.

Stamp captions, however, do not always lag behind general practice. There is one reported case in which the first "publication" of a newly-discovered species of moth (*Othreis toddi* Zayas 1961) appeared on a Cuban stamp (I understand that it was not accepted as a valid publication) and there have been several occasions when stamp captions have been ahead of popular literature, particularly in the naming of some

West Indian Lycaenids. But, late or early, they prompt exploration into the nooks and crannies of the complex history of nomenclature which most of the popular literature passes by. And, however confusing the synonyms may be, at least we can be reasonably certain that *Papilio machaon,* the most popular stamp subject in the butterfly world, will never be given one!

REFERENCE

Hemming, F. (1968). *The Generic Names of Butterflies and their Type-species.* British Museum.

CONVOLVULUS HAWKMOTH IN WEST WALES

by Graham Smith (4950)

I wish to report a find of a Convolvulus hawkmoth, *Agrius convolvuli* on the sand at Porthsele Beach, St Davids on 30th August 1992. The moth was found by a work colleague, Mrs Anne Britten, whilst on holiday in that part of Wales. She placed the moth, which was presumably dead, on some nearby grass and photographed the specimen. However, when she returned with a suitable container the moth could not be located. The photograph shows that it certainly took a beating during a force nine gale raging the previous night, which may explain how it became grounded on the beach itself.

CATERPILLAR CAPER ENDS IN PARASITIC PRECEDENCE

by T. Peach (9377)

While out walking and generally observing the flora with my son Daniel (as we amateur entomologists do — ever hoping for a lucky find), we were about to walk under a railway bridge, just a mile from our house in Kingsthorpe, Northamptonshire, when Daniel spotted a caterpillar climbing the brickwork on the inside arch of the bridge. On closer inspection this caterpillar was not alone — there were about thirty others of the same species, all Small tortoiseshell (*Aglais urticae*) making their way to pupate on the underside of the bridge. Looking along the brickwork, we found numerous chrysalids already suspended from it. We gathered 54 of them by gently releasing them from the bricks and they were glued to horizontal twigs placed in my emergence cage so as to be ready for release later into the garden, already primed with several buddleia bushes of various colours and in fair bloom, as well as other delights for our guests. Indeed our garden is a real "butterfly pub." We awaited the imagines. Only days later the first emergence happened: 34 metallic green chalcid wasps from one of the chrysalids. In the event, of our 54 chrysalids taken home, only three emerged as adult Small tortoiseshell butterflies, and these were released to enjoy their freedom.

BOOK REVIEW

Butterfly Farming and Conservation in the Indo-Australian Region by Michael J. Parsons. In: *Tropical Lepidoptera,* Vol. 3, special suppl., 62pp. including 4 colour plates, plus cover photos, diagrams and maps. Association for Tropical Lepidoptera, Gainsville, FL32614-1210, USA. 1992. ISSN 1048-8138. Price $10.00.

This special supplement of the *Tropical Lepidoptera* magazine consists of two articles, one dealing with general issues of butterfly farming and conservation, and the other with the dangers facing the world's largest butterfly species — *Ornithoptera alexandrae.*

The author, now based in California, spent several years in Papua New Guinea in charge of a government research and development project on butterfly farming, and he has continued to act as a consultant. The first of his articles is a useful overview of butterfly farming, commercial collecting and conservation in New Guinea and other countries including China, India and Australia. Although this overview carefully balances the rights and wrongs of exploiting wildlife commercially, the author sometimes seems a little over-anxious to preach the message that trading is "all right", subject to safeguards for endangered species and for the economic interests of native peoples. It is doubtful whether his arguments will impress those whose anti-collecting views are more emotional than rational, not to mention others who feel that cabinet-filling is a less worthy form of entomology than many other activities. Nevertheless, he makes an excellent case for butterfly farming or ranching as a non-destructive use of tropical ecosystems, which can help to reduce the economic pressure for countries to exploit their resources unsustainably. He admits that commercial collecting is more widespread than farming but emphasises the importance of mapping and monitoring species so that protection can be provided for any whose status might make them vulnerable to over-exploitation. In this context, he points out that existing CITES and other regulations for various birdwing species need changing in the light of survey data.

The author's article on the ecology and conservation of *O. alexandrae* is both fascinating and disturbing. This New Guinea butterfly has a very restricted natural distribution and, despite "paper protection", of the species, its habitats are being progressively destroyed by logging and by the establishment of oil palm plantations with the assistance of the world Bank. That organisation has become aware of the problem, and it recently commissioned the author to do a survey with a view to defining habitat areas that deserve special protection.

Although not every lepidopterist might wish to spend $25 p.a. on a subscription to the magazine, this supplementary issue at $10.00 is especially worth acquiring by anyone who is interested in tropical butterflies and is not too sensitive to spelling and typographical errors. DL

MORE ELEPHANT HAWKS ON BOGBEAN

by Paul Cobb (9594)

I was interested to read Mark Hope's note in the December *Bulletin,* as a few months previously a friend had drawn my attention to some Elephant hawkmoth (*Deilephila elpenor*) larvae feeding on bogbean (*Menyanthes trifoliata*) in his garden pond. Both green and brown colour forms were present, and some had followed the floating bogbean stems well out over the water.

I searched my books for any previous reference to this feeding behaviour, and found in Ellis (Ellis, E.A. (1965) *The Broads*. Collins, London. New Naturalist **46**) the statement "when almost full-fed they tend to consume a variety of other plants, including marsh pennywort and bogbean."

WINGS FOR THE EARTH

Wings for the Earth (WFTE) is a California-based non-profit organisation which promotes and facilitates the preservation of tropical rainforests and other fragile and biologically diverse ecosystems. WFTE accomplishes its mission by promoting insect management as a sustainable and culturally appropriate method of development, providing real economic incentives for the preservation of endangered wildlife habitats.

The goal of WFTE is to demonstrate the substantial economic value of tropical insects and the products they yield. Expertise for WFTE operations is drawn from the insect rearing programme at the Insect and Farm Trading Agency and the WAU Ecology Institute in Papua New Guinea. This widely acclaimed and successful operation is endorsed by the Lepidoptera Specialist Group of the International Union for Conservation of Nature and Natural Resources.

Tropical insects and the products they make have substantial economic value. Thus, the rainforest's myriad of insects can come to our aid. If harvested carefully, they can provide a sustainable income to the natives. In turn, these natives will have an incentive to preserve the insects and the rainforest habitat.

Butterfly rearing has worked well in Papua New Guinea for 20 years. The procedure is simple: larval foodplants are planted on the edge of the jungle. They attract the female butterflies to lay eggs and when the eggs have developed into pupae, they are harvested and brought back to the village. There, the adult butterfly emerges. The final products are preserved butterflies shipped to museums and collectors worldwide.

Every day, more and more people, corporations and governments are recognising the incredible economic and cultural value of tropical rainforests and other biologically diverse ecosystems and the need to preserve them for future generations. Please help WFTE accomplish its mission. We look forward to receiving information and/or your contribution. If you have any questions or comments about WFTE please contact us via telephone (510/531-8959) or fax (510/531-6659). Wings for the Earth, 6341 Longcroft Drive, Oakland, California 94611, USA.

FLEAS, PLEASE

by R.S. George (1402)

54 Richmond Park Avenue, Bournemouth BH8 9DR.

Please, would you help me with recording the distribution of British fleas? There are so few people interested in this neat little group of insects (in Britain a maximum of 68 species, sub-species, intermediaries and hybrids) that coverage of the country as achieved by botanists, mammalogists, ornithologists, lepidopterists, even by those working on centipedes and millipedes, can never be attained.

Nevertheless, the distribution maps of some species can be dramatically improved by a comparatively small amount of help. To get 100% coverage of a species a record is needed from every one of the 3,600 plus 10km squares of the national grid. Yet well under a thousand squares have been recorded for the cat flea (and many of the records are very old!), and less than 400 for the dog flea. So how about de-fleaing your pets and sending the specimens along? — with data of course.

Other good sources are the nests of housemartins (three species), voles (up to seven species in one nest), rabbits (one species), nesting boxes (two species).

Any decent, self-respecting county could raise a flea list of 40 forms — the League List is headed by Hertfordshire with 44, Gloucestershire with 43 and Oxfordshire with 40. The top Scottish county is Aberdeenshire with 38; in Wales, Glamorgan has 37 and in Ireland County Cork — with a smaller mammal fauna — has 26.

Collectors must respect the various Wild Life Laws concerning the handling of certain host species but insofar as martin nests are concerned I have discussed this with the Licensing Officer of English Nature (the old NCC) and he raises no objection to the collection of nests whilst the birds are overseas. One nest per colony is all that need be examined. Please send to me please at at the address given above.

1991 — A POOR SEASON CONTINUES

by Roger Hayward

16 Gilmore Close, Langley, Slough, Berks SL3 7BD.

The disappointments of the spring continued into the summer, which was yet another of drought, as my poor lawn will testify. A glance at the tables will reveal not only a low total of species but, in most cases, small catches as well. I noticed more minor cripples this year than ever before, no doubt due to the drought.

As before, each day box is divided diagonally, upper left, against the proper names, for the Heath trap and lower right, against the colloquial names, for the Robinson trap. A blank indicates that the trap was not run, a zero indicates a nil catch and a dash indicates that the Robinson trap was run at the alternative site. The Robinson trap almost always out-performed the Heath trap, which was run within line of sight and about 20 feet from it. However, the small trap did comparatively well on 3rd August, when there was no competition from the more attractive 125 watt bulb, and also on the 10th and 17th, when there was.

Species such as *C. bilineata* (Yellow shell) and *A. gamma* (Silver-Y) were much commoner in flight at dusk than they ever were in the traps. The Robinson trap continued to be sited adjacent to the west-facing wall of the house, to avoid disturbance to neighbours, and this remained a rich source of captures, including a high proportion of the Pugs. Hardly any species settle higher than about ten feet, the most persistent offender being *X. fluctuata* (Garden carpet). The few others have to be identified with the aid of the telephoto lens on my camera. The Copper underwings can only be separated with certainty by examinining the underside of the wings, necessitating a climb up the step-ladder.

A last-minute electrical problem meant that the Heath trap could not be run on the first weekend of the second period of this survey, when *A. exclamationis* (Heart and Dart) and *H. ambigua* (Vine's rustic) dominated all else. We were away for the next two weekends on our annual quest for the sun. These trips are definitely non-entomological, but I do keep an eye open for macro-lepidoptera. Compared with Northern Yugoslavia, even the Greek Islands have seemed poor, but in Puerto de la Cruz (Tenerife) we chanced upon no moths at all! There were a few butterflies in the botanical gardens bu the highlight was the sighting of three Danaids in the town.

We returned to Slough on 11th July, which meant an extra night's trapping that weekend. The totals for *A. monoglypha* (Dark arches) and *H. alsines* (the Uncertain) were starting to build up by then, making the catches look almost respectable. A single *M. neustria* (the Lackey) which is a rarity in this area, graced the Robinson trap in my garden on the morning of the 12th, and another turned up at the alternative site (the first ever there) next day. Even with the Robinson trap away at the alternative site again on the night of the 13th, next morning found only ten species in the Heath trap. The only event of note until the last weekend of July was the belated appearance of *A. tipuliformis* (Currant clearwing) on my red currant bushes. The first empty pupa case was seen on the evening of the 18th and the second on the 22nd. I made traps to catch any more emerging but unfortunately, none did. Last year there were a dozen or more, but only two caught, after the first one or two colonisers had appeared in 1988 and '89. It was also at this time that the first ever *C. cardui* (Painted lady) appeared in my garden, although I had seen it in earlier years elsewhere in Slough.

The following two weekends provided much of interest and produced a number of new records. On the night of the 26th I ran the Robinson trap at the local alternative site, but despite the lack of competition the Heath trap contained few moths on the morning of 27th July. A single *C. glaucata* (Chinese character) in the Robinson trap was a new record for the wooded site, but even more interesting to me was a female *Z. pyrina* (Leopard moth) found in the grass some distance from the trap. It was the first female of that rather scarce species I had seen since the mid-1950s and it was a great disappointment to find that it had been attacked and injured by, presumably, a magpie. I spent a considerable amount of time cleaning it up and removing body fluids from the wings, but it will never look quite right. Next morning there were only seven moths in the Heath trap, but the Robinson trap contained singletons of *E. millefoliata* (Yarrow pug) and *S. liturata* (Tawny-barred angle), two additions to the list for my garden.

The first weekend in August brought more new records. Firstly, on the 2nd/3rd a surprising gap in my garden list was filled with the capture of a single *X. spadicearia* (Red twin-spot carpet). Also that night the Robinson trap produced two *E. tenuiata* Slender pug), a new record for Slough. Altogether there were seven species of pug that night. On the Saturday night the large trap was run at the alternative site, producing two more new species for that list: *S. chenopodiata* (Shaded broad-bar) and *T. matura* (Straw underwing). No less than 13 *C. trapezina* (the Dunbar) came as a surprise. As previously mentioned, the Heath trap did unusually well that night.

During the following week I checked my small patch of sweet williams for larvae of *H. compta* (Varied coronet), but only a single larva of *H. bicruris* (the Lychnis) was found. In other years there have been several dozen larvae from the two square metres or so, including many *H. compta*. Relatively high catches were recorded the following weekend, including an early *C. nupta* (Red underwing) although without the bonus

	June		July						August											Sept.	
	21	22	11	12	13	20	26	27	2	3	9	10	16	17	23	24	25	30	31	6	7
H. sylvina Orange swift															1 0			0 1			
M. neustria The lackey			0 1																		
D. bimaria Oak hook-tip											0 1	0 1									
C.glaucata Chinese character									0 1	1 -											
I. fuscovenosa Dwarf cream wave						- 1	3 -	0 2	0 2		0 1										
I. seriata Small dusty wave														0 1				0 1			
I. dimidiata Single-dotted wave						- 1						0 1									
I. trigeminata Treble brown spot		- 1	0 1						0 1												
I. emarginata Small scallop									0 1												
I. aversata Riband wave	- 1		3 8	1 -		- 7		0 5	0 21	4 -	2 15	3 6	0 7	5 3			0 3	0 2	0 4	0 1	
X. spadicearia Red twin spot carpet									0 1												
I. ferrugata Dark-barred twin- spot carpet											0 1										
X. fluctuata Garden carpet	- 1	- 1	3 0	1 -	1 -				1 2		0 2	1 0	1 0				0 1	0 2	5 4	1 4	
S. chenopodiata Shaded broad-bar										1 -											
E. alternata Common carpet									0 1		1 0	0 2	0 2				0 2		0 1		
C. bilineata Yellow shell							1 -		0 2		2 2		0 1	1 0		1 -	1 1		0 1	1 0	1 -
C. pectinataria Green carpet																		0 1			
E. pyraliata Barred straw			1 0																		
C. truncata Common marbled carpet	- 2																				
T. obeliscata Grey pine carpet	- 1																				
E. tenuiata Slender pug									0 2												

	June		July						August											Sept.	
	21	22	11	12	13	20	26	27	2	3	9	10	16	17	23	24	25	30	31	6	7
E. exiguata Mottled pug	- 1																				
E. centaureata Lime-speck pug				1 -	1 -	- 2			2 1		0 1	0 3	0 1	1 1				0 1	0 2	1 0	
E. absinthiata Wormwood pug									0 1												
E. assimilata Currant pug										1 -				- 1			0 1				
E. icterata Tawny-speckled pug												0 1							0 3		
E. succenturiata Bordered pug									0 1												
E. millefoliata Yarrow pug								0 1	0 2			0 3	1 2								
E. simplicata Plain pug									0 1		0 1										
C. rectangulata Green pug	- 1		0 1																		
G. rufifasciata Double-striped pug			1 0						0 1			2 0		1 0	1 1		1 0	1 3			
A. plagiata Treble bar											0 1										
A. efformata Lesser treble bar									0 1												
S. liturata Tawny-barred angle								0 1													
O. luteolata Brimstone moth											0 1	0 1	0 1	2 1	0 1		0 2	0 7	0 13	0 2	
S. dentaria Early thorn									0 1												
C. elinguaria Scalloped oak						- 3		0 2	0 4	2 -	0 1	0 2		0 2							
O. sambucaria Swallow-tailed moth									0 1												
P. rhomboidaria Willow beauty									0 3	2 -	0 9	5 3	3 6	3 3	1 6		2 12	4 16	2 14	2 0	2 -
L. pouli Poplar hawk-moth									1 1												
D. elpenor Elephant hawk-moth						- 1															
P. tremula Swallow prominent												0 1									

	June		July						August											Sept.	
	21	22	11	12	13	20	26	27	2	3	9	10	16	17	23	24	25	30	31	6	7
P. palpina Pale prominent												1 0									
E. similis Yellow-tail								0 1													
E. complana Scarce footman														1 0							
E. lurideola Common footman									0 1					1 0			0 1				
A. caja Garden tiger													0 1	0 3							
P. fuliginosa Ruby tiger							1 -		0 1	1 -	0 1	1 3		0 1							
A. segetum Turnip moth	- 3	- 2	1 0	1 -		- 1		0 3									0 1	0 2	0 1		
A. clavis Heart & club				1 -																	
A. exclamationis Heart & dart	- 42	- 39	6 44	8 -	8 -	- 39		0 7	0 5	3 -	0 2	0 4									
A. puta Shuttle-shaped dart	- 2	- 1		1 -					0 1	1 -	0 5	2 4	3 3	1 3	0 2			0 2	0 2	0 2	
A. putris The flame			1 0		1 -	- 1			0 1												
O. plecta Flame shoulder													0 2	1 0			0 1	0 1			
N. pronuba Large yellow-underwing	- 1		2 3		2 -	- 4	1 -	2 5	2 5	8 -	1 41	11 27	2 12	1 7	2 3		6 21	18 37	20 55	8 11	23 -
N. comes Lesser yellow-underwing			0 1			- 2	1 -	0 2	1 2	1 -	1 3	1 1	0 7	4 11	3 6	4 -	2 2	4 12	4 25	2 9	8 -
N. fimbriata Broad-bordered yellow			0 2						0 1			0 1		0 1	0 1			0 1		0 2	1 -
N. jathina Lesser broad-bordered yellow underwing								0 1	1 1		0 12	1 15	3 13	2 12	0 6		0 7	1 4	0 2		
N. interjecta Least yellow underwing											0 1	1 0									
D. mendica Ingrailed clay	- 2																				
D. rubi Small square-spot	- 2														1 0	1 -		0 1	0 2		
X. c-nigrum Setaceous hebrew character	- 1	- 3	0 4									0 4	0 4	1 3	1 6		0 9	0 15	2 20	0 20	5 -
X. triangulum Double square-spot			0 1			- 3	1 -	1 2													

	June		July						August											Sept.	
	21	22	11	12	13	20	26	27	2	3	9	10	16	17	23	24	25	30	31	6	7
X. sexstrigata Six-striped rustic																1 -			0 1	1 0	
X. xanthographa Square-spot rustic								0 2		1 -	0 5	1 3	0 3	0 5	2 7	4 -	2 10	2 20	2 24	4 28	10 -
D. trifolii The nutmeg											0 2										
M. brassicae Cabbage moth						- 1					0 1								0 1		
L. suasa Dog's tooth									0 1			0 1	0 1								
L. oleracea Bright-line brown-eye	- 1		1 1					0 3	0 1		0 1	0 1						0 1	0 1		
H. bicolorata Broad-barred white						- 2															
M. conigera Brown-line bright-eye									0 1												
M. ferrago The clay			0 2			- 3		2 1	0 1			0 1									
M. impura Smoky wainscot			0 1			- 8	1 -	0 2			0 3	0 1									
M. pallens Common wainscot	- 1	- 1	0 1					0 2	0 1		0 1						0 2	0 1	0 7		
M. comma Shoulder-striped wainscot	- 1																				
A. psi Grey dagger						- 1					0 1	0 1	0 1	0 1							
C. domestica Marbled beauty				1 -		- 2	1 -	0 4	0 4	2 -	2 2	0 4	2 1	0 2		1 -	2 13	1 16	1 9	0 1	2 -
A pyramidea Copper underwing									1 0	1 -	0 2	1 1	1 1			1 -	0 1	0 1	0 3		
A. berbera Svenson's copper underwing						- 1			0 2		1 0							0 3	0 3	0 2	
A. tragopogonis Mouse moth											0 1	1 0	0 1	0 1				0 3	0 3		1 -
M. maura Old lady																0 3		1 0			
D. scabriuscula Bird's wing	- 1									1 -											
R. ferruginea Brown rustic						- 2															
T. matura Straw underwing										2 -	0 10	2 20	0 11	1 12	0 1		0 1				

	June		July						August											Sept.	
	21	22	11	12	13	20	26	27	2	3	9	10	16	17	23	24	25	30	31	6	7
P. meticulosa Angle shades																	1 0	0 2		2 3	2 -
C. trapezina The Dun-bar			0 1			- 2	1 -	0 6	0 5		0 5	1 4	0 2	1 1							
A. monoglypha Dark arches	- 4	- 2	12 29	3 -	6 -	- 90	2 -	1 5	2 10	3 -	0 6	4 6	3 2	1 1					0 1		
A. lithoxylaea Light arches				2 -	1 -	- 2					0 3										
A. anceps Large nutmeg	- 1																				
O. strigillis Marbled minor	- 2	- 5	0 1	1 -		- 2															
O. fasciuncula Middle-barred minor	- 2	- 2																			
M. furuncula Cloaked minor						- 2		0 2	0 4	1 -	1 59	6 15	0 5	3 11	1 1		0 1	1 0	0 1		
M. secalis/ M. secalella Common/Remm's rustic			1 0			- 9	2 -	2 21	7 21	1 -	4 53	26 34	8 25	5 12	0 3		0 3	0 3	0 2		
L. testacea Flounced rustic											1 1	2 3	2 2	5 7	5 5	13 -	7 12	3 7	4 13	4 7	29 -
A. oculea Ear moth								0 1				1 1			0 1			0 1			
H. micacea Rosy rustic																					1 -
C. trigrammica Treble lines	- 1	- 1																			
H. alsines The uncertain	- 1		4 26	14 -	4 -	- 32	5 -	0 25	0 20	7 -	0 8	0 3									
H. blanda The rustic	- 3		0 1			- 15		0 1	0 5		0 1				0 1				0 5		
H. ambigua Vine's rustic	- 28	- 21	2 3		1 -	- 4			0 2		0 4	1 3	4 10	4 7	5 6	2 -	1 12	1 38	4 52	3 19	1 -
C. morpheus Mottled rustic			1 2	1 -			- 4	2 -	0 1	0 1											
C. clavipalpis Pale mottled willow	- 8	- 2	1 3	2 -	2 -	- 9		0 2		3 -	0 2	3 3	1 0	1 6	0 1			0 9	2 6	0 2	1 -
D. chrysitis Burnished brass			1 0			- 1		0 1													
A. gamma Silver Y						- 4		0 1	0 3		0 2	0 2					0 3	1 2	1 1		
C. nupta Red underwing											0 1				0 2						

PART 2

Robinson trap records at alternative site

	July			Aug		Sep
	12	13	26	4	25	7
H. sylvina Orange swift					1	
Z. ptrina Leopard moth			1			
M. neustria The Lackey	1			3		
D. binaria Oak hook-tip				3		
C.glaucata Chinese character			1			
H. aestivaria Common emerald	1					
I. fuscovenosa Dwarf cream wave			3			
I. dimidiata Single-dotted wave			1	2		
I. trigeminata Treble brown spot	2	1				
I. aversata Riband wave	3	12		12		
X. spadicearia Red twin spot carpet				2		
S. chenopodiata Shaded broad-bar				1		
C. pectinataria Green carpet						2
E. pyraliata Barred straw			1			
T. obeliscata Grey pine carpet		2				
E. simplicata Plain pug					1	
G. rufifasciata Double-striped pug				1		
O. luteolata Brimstone moth						2
E. quercinaria August thorn			2	1		
E. alniaria Canary-shouldered thorn				1		
E. fuscantaria Dusky thorn						4

	July			Aug		Sep
	12	13	26	4	25	7
S. dentaria Early thorn				1		
C. elinguaria Scalloped oak			4			
P. rhomboidaria Willow beauty				1	5	5
A. repandata Mottled beauty	1	1				
C. pusaria Common white wave			1	1		
C. exanthemata Common wave					1	
L. populi Popular hawk-moth	1	1		1		
P. bucephala Buff tip		1		1		
P. tremula Swallow prominent				1	1	
O. antiqua The vapourer						1
E. lurideola Common footman	2		2	2		
S. lutea Buff ermine			1			
N. cucullatella Short-cloaked moth	1	1				
A. segetum Turnip moth	1	1	1			1
A. exclamationis Heart and dart	3	3				
N. pronuba Large yellow-underwing	1	2	3	5		10
N. comes Lesser yellow-underwing	1		1			3
N. fimbriata Broad-bordered yellow underwing	1					
N. janthina Lesser broad-bordered yellow underwing					2	
D. rubi Small square-spot					1	
X. c-nigrum Setaceous hebrew character	1				1	16

PART 2 *Continued*

	July			Aug		Sep
	12	13	26	4	25	7
X. triangulum Double square-spot	10	10	6			
X. sexstrigata Six-striped rustic					1	
X. xanthographa Square-spot rustic					3	18
L. oleracea Bright-line brown-eye	1			1		
M. ferrago The clay	1	1	4	3		
M. impura Smokey wainscot	1		3	3		
M. pallens Common wainscot					2	3
A. litura Brown-spot pinion						1
C. domestica Marbled beauty				1		
A. berbera Svennsson's copper underwing			1			
R. ferruginea Brown rustic	1	1				
T. matura Straw underwing				1		
P. meticulosa Angle shades						3
C. trapezina The Dun-bar			3	13		

	July			Aug		Sep
	12	13	26	4	25	7
A. monoglypha Dark arches	7	4	2	2		
A. lithoxylea Light arches	2	1				
O. strigilis Marbled minor	2					
M. secalis/M. secalella Common/Remm's rustic			3	15	3	
L.testacea Flounced rustic					1	5
G. flavago Frosted orange						1
H. alsines The uncertain	23	23	9	11		
H. blanda The rustic		2	2	1		
H. ambigua Vine's rustic		1			3	2
C. morpheus Mottled rustic	2	5	2			
C. clavipalpis Pale mottled willow				1		
D. chrysitis Burnished grass						1
A. gamma Silver Y					1	1
H. proboscidalis The snout						6

of new species to my lists. The only moth of note on the night of the 16th/17th was the first *A. caja* (Garden tiger), a species which is becoming scarcer here. The next night was another high spot for the Heath trap, which produced an *E. complana* (Scarce footman), another addition to my Slough list.

The bank holiday weekend allowed me to run the traps on three nights, but little of note appeared. There was a *C. nupta* in the big trap on the morning of the 24th, and another just outside the front door of the house and about as far from the traps as it could be. *E. simplicata* (Plain pug) and *X. sextrigata* (Six-striped rustic) were new species for the alternative site on the morning of the 25th, while next day the Robinson trap contained a *V. atalanta* (Red admiral) and three *M. maura* (Old lady) — unfortunately all males. At dusk on the 28th there were many *A. gamma* around a small buddleia bush close to the house, while shortly before sunset on the 29th there were several *A. urticae* (Small tortoiseshell) basking on a wall behind the same bush — both clues that there had been a migration.

The weekend at the turn of the month produced nothing of interest, although there were reasonable numbers of the commonest species, but there were many moths flying in the garden at dusk on 4th September, mainly *A. gamma* but with a few *H. sylvina* (Orange swift). The weather turned colder towards the end of the week, leading to lower catches over the last weekend of the recording period. When putting out the traps on the evening of the 6th I was surprised to find a male Lesser stag beetle (*Dorcus parallelopepedus*). Next night at the wooded site the turn in the weather was confirmed by the capture of *A. litura* (Brown-spot pinion) and *G. flavago* (Frosted orange). The latter is always scarce in my garden and was a new record for the alternative site.

In case any reader is puzzled by the relatively small catches of *N. pronuba* (Large yellow underwing), I should explain that I do not release the specimens of this restless and therefore troublesome species close enough to the trap sites for them to be likely to return on a subsequent night.

So ended the summer period, which saw a number of additions to my local lists but no new species to my personal overall list.

BOOK REVIEW

The Ecology of Butterflies in Britain. Edited by R.L.H. Dennis. 4to, hardback, 354pp. Black and white plates and line drawings. Oxford University Press, 1992. Price £50.00.

This work consists of a series of studies in depth of various biological aspects of our British butterflies, written by leading expert lepidopterists. Subjects covered are the island races, behaviour, eggs and egg-laying, populations and communities, defence methods, movement and migration, evolution (history and specific studies) and conservation. Appendices set out a check list of species and hostplants, breeding biotopes, the JCCBI codes of collecting and introduction, a glossary and a comprehensive bibliography. The chapters are full of information, easy to read, thought-provoking and do not repeat the errors of earlier authors. The chapter on eggs and egg-laying by our member, Dr Keith Porter, I found of particular interest though he does not deal with the propensity of some species to choose small insignificant bushes when large and lush ones are available close at hand. This volume is a must for anyone wishing to increase their knowledge of our native butterflies. The printing, done at Aylesbury, is excellent and the cover adds to the presentation.

PWC

THE SOUTHERN HAWKER IN A BOURNEMOUTH GARDEN

by R.S. George (1402)

On 3rd November last year, a male specimen of this dragonfly, *Aeshna cyanea,* spent about ten minutes flying to and fro over my garden pond.

This behaviour fits precisely with the notes in C.O. Hammond's *The Dragonflies of Great Britain and Ireland* (1983), except that the flight-time given there is "mid-June to mid-October". Thus this specimen was almost three weeks late.

The pond has attracted several damsel-flies and a few of the larger dragonflies in earlier years but I have not seen this species here before. In its first year, seven years ago, the pond brought in several female stag beetles all of which drowned. Since then all stag beetles in the garden have stayed on dry land.

CRIMSON SPECKLED IN THE ISLES OF SCILLY AND THE DELICATE IN PENZANCE

by K.H. Poole (133)

During a visit to the Isles of Scilly last year, whilst walking along the cliff-tops at St Mary's, on 18th September, a small whitish moth flew up and then settled. Looking at it fairly casually to see what it might be, I was delighted to find it was a Crimson speckled, *Utetheisia pulchella,* in perfect condition, and the first live specimen to come my way. In his *A Revised List of the Lepidoptera of the Isles of Scilly* (1981), Rev. David Agazzis gives the last occurrence of this species as 1970, but it may of course have been recorded since.

Another bonus on returning from Scilly was the Delicate, *Mythimna vitellina,* found sitting on Penzance Railway Station — I understand a number were recorded in Cornwall this autumn (1992).

ARGENT AND SABLE MOTH IN PARKHALL COUNTRY PARK, STAFFORDSHIRE

by Jan Koryszko (6089)

On the morning of 11th June 1992 I was collecting insects at Parkhall Country Park, when a quite worn Argent and Sable, *Rheumaptera hastata hastata,* landed on a tree trunk close to a disused sandstone quarry.

This is the first record for the area. In 1991 I had a possible sighting in almost the same spot and I informed the county Lepidoptera recorder, Mr R.G.Warren. He said it had been recorded some miles away at Consall, and it may well be spreading into the area. It will be interesting to see if this species can establish itself in the area in future years.

JOURNAL REVIEW

Phasmid Studies Vol. 1, No. 1. Ed. P.E. Bragg, A4, pp.24, illustrated. ISSN 0966-0011. Price £2.00.

In the same way that the AES outgrew its early publication and "split" into two; the one for longer, the second for shorter items and Society news, so now has the thriving Phasmid Study Group's publication. *Phasmid Studies* is for the longer articles and will include the techniques of rearing various species. This first issue is well produced, being both in a clear typeface, well illustrated and well bound. Stick insects being the length they are, the A4 format is the right one to have made. The articles include egg laying habits of *Epidares nolimetangere* and *Dares ulula*; some notes on an (as yet) unidentified species of *Bacteria*; an account of the phasmid egg, culturing notes on *Carausius abbreviatus* and on a *Phaenophorus* species; some Seychelles Islands' phasmids; a book review and abstracts of recently published papers on phasmids, particularly those by fellow enthusiasts in France and Holland. Details of the Group are obtainable from their Membership Secretary, 40 Thorndike Road, Slough, Berks SL2 1SR. BG

A RED ADMIRAL FLYING IN JANUARY

by A.G.J. Butcher (9087)

At approximately 10.30am on 29th January this year, I was standing at the patio door of my house in Gillingham, Kent, surveying the weather. The sun had been shining and it was unusually warm. The sky was now becoming somewhat overcast when I noticed a butterfly flittering around a neighbouring rooftop some 100 yards away. I was hoping to get a better glimpse for some sign of recognition when to my amazement it suddenly headed straight towards me, over the garden fence and into the patio where I stood and passed me not three feet away — a Red admiral (*Vanessa atalanta*) — before settling in a plant pot. It sat with wings quivering, trying to summon up more energy and I had no trouble cupping my hands around it. As it sat in my hand I saw that it was a female and about 40 seconds later it continued on its merry way. I believe that it must have awoken, temporarily, from hibernation during this particularly mild spell, but one can only surmise whether it has survived the rest of the winter.

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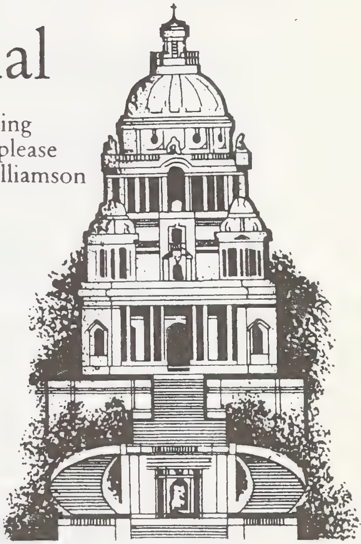

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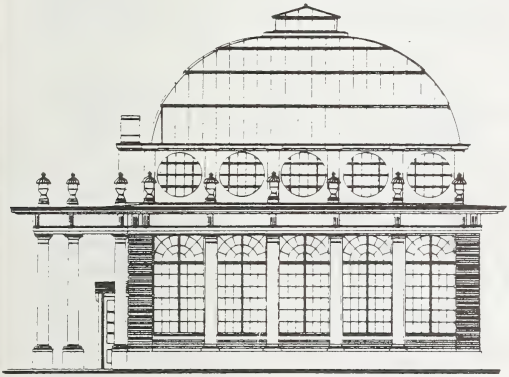

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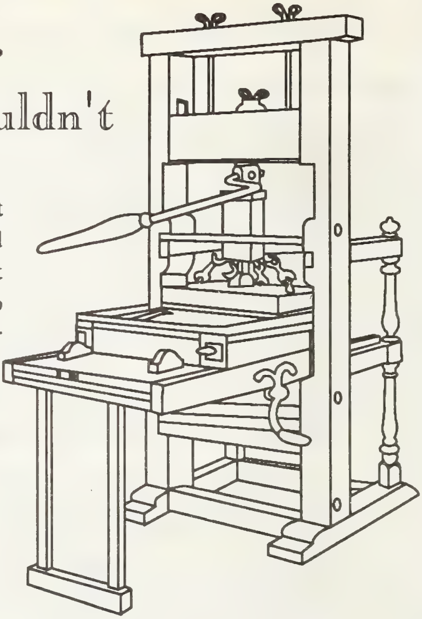

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Volume 52, No. 388, June, 1993

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EDITOR
BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

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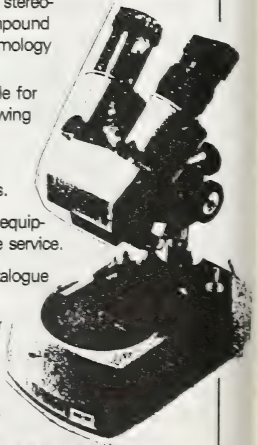

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AES BULLETIN

No. 388

EDITORIAL

WANTED — AN EDITOR

By April next year I shall have been editor of the *Bulletin* for twenty years and I feel it is time to hand over to a younger man or woman. Although the option of being thrown in at the deep end is open, I shall be only too willing to show the ropes, hold the hand, and guide my successor into the job. Both I and the Society have an excellent relationship with Norman Cravitz, our printer, who knows our ways and is extremely helpful in all matters connected with our printing requirements. Over the years I have thoroughly enjoyed the job and made many friends as a result. It is not too arduous, and while a computer is useful it must be remembered that *all* editing was done without one, anywhere, up to about ten or twelve years ago. Help with typing and with illustrating is available if required.

The basic qualification required is to be keen to undertake the post. It is also useful to have the ability to sort the wheat from the chaff; to correct bad grammar and occasionally re-write an article; to be consistent in the use of names and text layout (something I have not always been!); to be able to attend at least some of the four Council meetings held each year in Central London. These take place in the evenings. Help is also available for such mundane tasks as proof reading and any items received about which there is doubt can be referred to members of Council or other willing helpers or experts. The new editor will also have the opportunity to stamp his/her own personality on the *Bulletin*. Our printer, for instance, has been suggesting for some time that we should have a change of cover, as a number of our contemporaries have recently done, and here would be a chance for a new editor to make an immediate mark.

Enquiries from interested parties please either to me or through the Registrar.

THE BALLAD OF THE BOLL WEEVIL

by Frank Marples (8226)

My brother Bill, who is a skilled and versatile guitar player, recently drew my attention to a blues song entitled *The Ballad of the Boll Weevil.* Curiosity led me into a little research.

The cotton boll weevil, *Anthonomus grandis,* appeared in Mexico, spread through Texas during the 1880s, and, following the turn of the century, was devastating cotton fields throughout the southern States. The weevil lays a single egg in each cotton boll, or seed pod. The larva consumes the boll from within — hence the crop failure.

The ballad reflects the cotton field worker's identification with the irrepressible weevil grub. The workers suffered great hardship and oppression, and the manner in which the weevil thrived, despite attempts at control, served as an inspiration to them.

TITLE PAGE AND INDEX

By accident the title page and index issued with the April *Bulletin* was printed with a type area larger than our normal size, which would leave no margin, and undoubtedly type loss, on trimming after binding. A replacement of the correct size is therefore enclosed with this issue.

1991 MACRO MOTHS IN SLOUGH — AUTUMNAL ANTICLIMAX

by Roger Hayward (2769)

16 Gilmore Close, Slough, Berkshire SK3 7AD.

During this instalment all records are from my garden. Despite my best intentions, circumstances conspired to prevent me from running a trap at the wooded alternative site even once. The tables of captures from my garden follow the pattern established in the two preceding parts.

As previously recounted, the first of the early autumn species had appeared, fittingly enough, during the first weekend in September. Clear skies the following Friday, the first trapping night of this final recording period, did not deter reasonable numbers of the commonerr species, as night temperatures did not fall as low as the lack of cloud had threatened. With seven species, the 13th saw the swan song of the geometers, although the meagre total of twelve specimens was exceeded a couple of weeks later. Rain, the first for six weeks, fell for two hours on Saturday night and unfortunately washed all the moths off the lit wall.

A little more rain fell during the next week, but by the Friday clear skies had allowed temperatures to drop. Saturday saw temperatures of 75°F followed by a cloudy night. This was reflected by the presence of 38 specimens in the Heath trap. The weekend saw the appearance of more of the autumnal species, including the first of the Sallows. A late *N. fimbriata* (Broad-bordered yellow underwing) was an unexpected visitor on the 21st.

The last weekend of September repeated the earlier pattern with the Friday night colder than the Saturday. However, the cold and windy Friday did produce a fine *L. ornitopus* (Grey shoulder-knot), a species which appeared here for the first time only last year. Eleven *X. fluctuata* (Garden carpet) in and around the Robinson trap on Sunday morning were a surprise, as was the abnormally high number of micros.

The first two weekends in October were fairly normal, enlivened by a further brood of *A. puta* (Shuttle-shaped dart) and some late *C. nupta* (Red underwing). A *P. flavicincta* (Large ranunculus), well marked with yellow, produced eggs after capture on the very cold night of the 5th. Only one moth came to the Heath trap on the night of the 11th, although numbers had been falling off since late September. Blossom on a small patch of ivy, just outside the garden, but opposite and within ten feet of the Robinson trap, rarely attracted more than a couple of moths, as revealed by almost nightly inspections with a lantern. I was therefore slightly surprised on the night of the 10th to see a single *N. comes* (Lesser yellow underwing) kept company by six *C. vaccinii* (Chestnut). In retrospect it is, in view of the number seen on 10th October, even more

	September						October							Nov	
	13	14	20	21	27	28	4	5	11	12	19	25	26	9	30
S. imitaria	0														
Small blood-vein	1														
I. seriata	0														
Small dusty wave	1														
I. aversata	0	0													
Riband wave	2	1													
X. fluctuata	3			3		0	0		0	0					
Garden carpet	0			1		11	1		2	2					
C. bilineata		1													
Yellow shell		1													
C. truncata	0			0		0	0		0				0		
Common marbled carpet	1			1		5	3		3				1		
T. obeliscata				0					0						
Grey pine carpet				1					4						
E. dilutata													0		0
November moth													1		1
O. luteolata	0														
Brimstone moth	1														
P. rhomboidaria	0	0													
Willow beauty	3	1													
A. segetum	0		0				1		0						
Turnip moth	2		2				0		2						
A. puta							0			0					
Shuttle-shaped dart							1			1					
N. pronuba	14	5	2	10	0	0	1		0	0					
Large yellow underwing	41	32	6	21	1	5	6		5	1					
N. comes	2	1	0	6		8	2	0	0	0		0			
Lesser yellow underwing	11	16	2	26		14	3	1	5	2		1			
N. fimbriata				0											
Broad-bordered yellow underwing				1											
N. janthe		1													
Lesser broad-bordered yellow underwing		0													
X. c-nigrum	4	1	0	4	0	0	0		0	0					
Setaceous Hebrew character	38	30	11	19	2	4	2		5	5					
X. xanthographa	0	1	0	1			0		0	0					
Square-spot rustic	29	13	4	8			2		1	1					
M. pallens	0	0								0					
Common wainscot	1	4								1					
A. lutulenta			0	0	0	0	0	0	0	0					
Deep-brown dart			7	6	2	4	1	1	5	4					
A. nigra	0		0	3		0	0	1	0	0		0	0		
Black rustic	1		1	1		8	9	0	5	1		1	1		
L. ornitopus					0										
Grey shoulder-knot					1										
L. leautieri						0	0		0	1		0	0		
Blair's shoulder-knot						4	4		11	9		1	4		

/continued	September						October							Nov	
	13	14	20	21	27	28	4	5	11	12	19	25	26	9	30
A. oxyacanthae													0		
Green-brindled crescent													1		
D. eremita			0			0		0							
Brindled green			1			1		1							
P. flavicincta						0		0	0						
Large ranunculus						1		1	2						
C. vaccinii							0								
Chestnut							1								
C. ligula								0	0			0			
Dark chestnut								1	1			1			
A. lota									0	1		0	0		
Red-line quaker									1	0		1	4		
A. litura				0		0									
Brown-spot pinion				3		1									
A. lychnidis						0		1		0	-		0		
Beaded chestnut						1		0		2	1		1		
O. lunosa			0	0	2	0	2	1	0	0					
Lunar underwing			2	9	23	19	31	22	6	8					
X. citrago				0											
Orange sallow				1											
X. aurago						0			0	0					
Barred sallow						2			2	2					
X. icteritia						0			0						
The sallow						2			1						
A. pyramidea	0	1		1					0						
Copper underwing	1	2		1					1						
A. berbera				2											
Svensson's copper underwing															
A. tragopoginis		1		0											
Mouse moth		0		1											
P. meticulosa	0	0	1			0	0	1	0	0		0			
Angle shades	2	3	2			3	2	1	3	1		1			
L. testacea	1	0	0	0	0	0									
Flounced rustic	2	8	1	1	1	1									
H. micacea		0				0									
Rosy rustic		2				1									
H. ambigua	4	5	0	3		1	0	0	1						
Vine's rustic	19	10	3	11		6	3	1	3						
C. clavipalpis	0	1	0	4		0	0		0	0					
Pale mottled willow	10	4	1	4		2	1		3	2					
A. gamma	0	0	0	1	0	0	0		0	0		2	1		
Silver Y	6	5	1	4	2	3	2		2	2		2	1		
C. nupta								0	0						
Red underwing								1	2						
H. proboscidalis	0					0									
Snout	2					1									

surprising that only one of the latter visited the traps during the recording period.

I was late back from a trip to Portsmouth on the 18th and it was so cold and windy in Slough that I didn't bother to set the traps. Conditions were the same on Saturday and I set only the Robinson trap, and on Sunday morning just one moth awaited me. The last weekend in October was slightly better but the following week saw the arrival of such wintry weather that I didn't bother to run the traps again until the night of 9th November. That was out of desperation and in the face of a severe frost: no moths came to either trap! I tried the traps again on the night of the 30th but took only a single *E. dilutata* (November moth), which shared the big trap with a large and varied collection of flies, mosquitoes and ichneumons. Sadly, the unusually cold weather continued, especially (or so it seemed) at the weekends, and that proved to be the last night's trapping in 1991. To have missed so many late-autumn species was a great disappointment.

Migratory moths have always been limited here to *A. ipsilon* (Dark sword-grass) and *A. gamma* (Silver Y), although the latter did manage to keep coming as late as 26th October. Even *P. saucia* (Pearly underwing), which I have taken regularly elsewhere, has never graced my traps in Slough.

It was not only moths which were scarce during this final period of my survey. Apart from whites, only a handful of butterflies appeared in my garden, despite many late flowers including some spikes of buddleia.

The new-year weather seemed topsy-turvy again this year, as a far-from-drowsy toad was wandering down my drive on 10th January. However, as has been the recent norm, real but snowless winter arrived shortly afterwards.

FRIENDS OF THE NATURAL HISTORY MUSEUM

Since 1881 the Natural History Museum has been home to the national collection of animals (over 20,000,000 insects), plants, fossils and minerals and an international centre for the study of the natural world.

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TRIALS AND TRIBULATIONS

by Don Smith (2864)

Westlands, Westfields, Kirkbymoorside, York YO6 6AG.

Life can become very complicated for a caring entomologist. Not that I do much fieldwork in this direction now, having shifted allegiance to the lichens. We have quite a large lawn, about three-quarters of an acre, divided into flowerbed part, orchard part and wildlife, waist-high vole-tunnelled part.

It was early June and I had cut about half the first lawn when a movement in the grass caught my eye. Crambid grass-moths must take pot luck and usually fly out of harm's way. I dismounted and got down onto hands and knees. Was it perhaps one of the numerous tiny, dark grey, 2mm frog-hoppers? Then I saw it, a diminuitive, first instar grasshopper, scarcely wider than a grass blade. I knew that I had *Chorthippus brunneus,* the Common field grasshopper, resident in the flower beds about two years ago. I had photographed a female egg-laying in the soil among the mortar debris from the patio wall. She was the centre of some very interested, sexually mature males with red flushed abdomens who persisted in trying to make light conversation. Whenever one got too close he received a violent kick from the female which often knocked him head over heels. No doubt, when one is armour-plated, a kick in the side is no more than a gentle love-tap — the males certainly seemed in no way discouraged by the rough treatment.

So all grass cutting ceased until the middle of July. During that time I met most of the colour varieties including the particularly photogenic purple var. One particular colour variety, not illustrated in Ragge's book, frequently occurred. This had a whitish stripe along the back which closely matched the many bleached grass and plant stem bits lying about on the flower bed. Eventually I encountered the cast skins of final instars and finally photographed a newly emerged adult with soft, crumpled wings, taking shots at intervals until, though still teneral (pale), the wings had become fully formed.

Around the middle of July, the decorators arrived to paint the house exterior and I decided to mow the orchard section. However, the adult grasshoppers had spread out by now and a brief reconnoitre of the longer grass revealed the presence of many adults, two of them being the rare green variety. As Ragge points out, this species' colour varieties seem to be influenced by their environment. The painters seemed in danger of falling from their respective ladders, they were so intrigued by the sight of me stalking on hands and knees and making repeated and often futile grabs. However, I managed to transport about twenty or so to the other end of the garden and only flushed a further two by the time the grass was cut.

Commencing some time in July, the annual occurrence of millions of fast moving red mites has happened on every flat surface — window sills, patio, shed and garage wall etc. They came in all sizes from 3mm, with extra long prolegs to tinies scarcely half that size, constantly searching and stopping. Some of the larger ones favoured hollows left by fallen out pebbles from various concrete and similar substrates and were very possessive, scuttling round, up and over the rim and back again. If any other large one dropped in, a furious fight took place, chelicerae to chelicerae, with prolegs whirring like catherine wheels. I managed to obtain some shots of these incidents by focussing on an occupied hollow with bellows at full extension.

The behaviour pattern of all individuals was identical, a rapid searching movement with continual change of direction and frequent stops, as if inspecting something. I concluded that they were eating some organic substance, perhaps algal cells, spores or pollen grains etc. The hollows so favoured by some would, of course, be ideal receptacles for wind-blown or rain-washed debris of this nature. The gait of about ten per cent of the larger ones was most intriguing, a crab-like sideways scuttle with body inclined at about 30° to the direction of travel. Each frequent change of direction was accompanied by the same curious body posture, giving the impression of some intricate dance routine. I suppose all naturalists enjoy noting something that possibly no one else has observed, let alone explained. I couldn't decide whether they were walking sideways, facing forward, or forwards, facing sideways! Despite the mass of mites on any one surface there was no evidence of accidental collisions, the little ones rapidly changing direction when within a few millimetres of one another. Only the big ones would engage in combat and I observed one pair grappling so fiercely that they fell off a vertical surface still locked together. I suspect that they navigate largely by chemical stimuli. The acari certainly possess extensive and well-developed chemoreceptors on the front legs though many do possess very primitive eyes. A finger drawn across their path produces an invisible barrier from which they shy and over which they refuse to cross. A similar phenomenon can be observed with ants who also follow odour trails. Their appearance must be a nationwide occurrence since I noted them in Nottinghamshire and west of Harrogate during this period. Specimens sent to the British Museum were identified as belonging to the genus *Balaustium,* family Erythaeidae. Closer identification could not be made since the group is not well worked.

Another mite, or rather, its larvae, also made its annual appearance about this time and is one that is felt rather than seen. This was the Harvest mite *Trombicula autumnalis*. How they came to be present on the lawn is a mystery but presumably, well-fed larvae were dropped by itinerant small mammals and the resulting adults continued their life cycle there. The larvae ascend grass stems in July when the weather is fair and await a passing paw on which to board. Shoes make a perfectly acceptable substitute. The only sure remedy then, apart from a bath and a good scrub, requires a pair of No. 5 Dumont watchmender's tweezers with needle points, a magnifying glass and the dexterity and suppleness of a stage contortionist. I only once located one that had not as yet found a suitable site and for a mite which is so small that one requires a lens to see it they can move surprisingly fast. The bite, which produces a pale pink area, is made with their scimitar-shaped chelicerae and though not taking blood, the injection of saliva dissolves skin cells allowing them to imbibe lymph.

However, if you get bitten while fruit-picking or when cutting the hedge, this is probably due to the attentions of both the immature and adult Flower-bug, *Anthocoris,* whose bite can be quite painful. Compared with my first recorded attack some 35 years ago which was so painful that the creature met the Great Bug in the Sky before it had even assuaged the first pangs of hunger, natural selection seems to have produced a race whose attentions are discovered too late for retribution. I suppose that if natural selection worked as quickly as that, it would have produced a race of sheep on the Yorkshire moors that don't leap in front of passing cars, so that's another theory shot down. Though, on second thoughts, bug and sheep life cycles are very different.

Anyway, the painters eventually finished and I was shamed into repainting the inside bay windows of my workroom/library/junk-room. One has to be married to a very patient, understanding and loving wife to be allowed to take over a third of the ground floor space. These windows, due to an accumulation of various print machines, boxes, piles of mags and papers etc, hadn't been touched, let alone painted, for at least twenty years. As soon as I started scrubbing down, two or three diminutive spiders appeared from various cracks, possibly alerted by vibration or flood damage. These were *Oonops domesticus,* scarcely 4mm long and pale pink. They could not be man-handled, even with a soft paint brush — they were far too fragile. So it was a case of a tube over the top and a thin card carefully slid underneath. Eventually, after tapping all over the area, about nine or ten were transported to my work shed where I knew there were others of their kind. This was an interesting phenomenon, that these hunting spiders can live in close proximity as a colony, since the particular tiny bay window concerned was only 24″

across by 9″ deep. Neither Locket & Millidge nor Jones mention this habit. These tiny spiders, *Herpyllus blackwallii,* also roam the house but they can look after themselves, except when one gets too close to the bath edge and slips down. Between them these hunting spiders prey on house pests such as flies, psocids and clothes moths etc. I have a lovely shot of *Herpyllus* with *Zygiella x-notata,* one of the Window spiders, in its jaws.

As the mite numbers eventually declined, I became aware of hundreds of tiny 3 - 4mm Dolichopodid flies, spaced out and motionless on every available vertical surface, the walls of sheds, the risers of the patio steps etc, and identified as *Medetera jacula.* All faced vertically upwards with body held at an angle to the surface, the exact opposite of the posture of the downward facing Snipe-fly, *Rhagio scolopacea.* I never noticed any activity whatsoever except once, when a Thrip (or Thunder-bug) walked between the Dollie's legs and the fly dipped down to view the intrusion after which it resumed its meditative stance. As *Medeterus* contains some of the most predacious of Dollies, presumably these were awaiting prey, thrips being considered as tough as old boots. If so there would be a lot of hungry flies — or else they were engaged in some other esoteric pursuit entirely. Perhaps they were all males waiting for some gauzy-winged female to pass by!

One last item of note in the invertebrate field was my second sighting in the last twelve months of the Hairy millipede, *Polyxenus lagurus,* in Yorkshire, this time in VC 61 in North Frodingham churchyard on 6th July. I believe the last official record was in the early 1900s.

Having left a window open in the kitchen after supper, with this saga almost concluded, I must now go round with a pocket of tubes and transport all the silly grass-moths outside. However, I must admit after all these life-saving exercises, bluebottles get very short shrift indeed — well, I am sure we all have our hang-ups! The different reactions of *Musca domestica,* the House-fly and *Calliphora,* Bluebottles, to pyrethrum is quite amazing. *Musca* can continue flying, so soaked that it drips a trail of spray fluid and I am sure that its ultimate death is due to suffocation, not poisoning. On the other hand, one only has to wave the can at *Calliphora* and it immediately flies kamikaze fashion with wing beats out of synchronysation like a light aircraft with a fuel pipe blockage.

The following day, donning wellies, I ventured out to pick blackcurrants. Returning for coffee, I thought to examine the surface of the wellies and there, barely visible, were a number of tiny red Harvest mite larvae ascending the rubber. I timed one at ten seconds for one inch of travel, roughly twenty yards an hour, not really slow for an organism whose leg length is measured in thousandths of an inch. I took the opportunity to examine them more closely under the microscope. The leg and body hairs are plumed like the antennae of the hoverfly *Volucella bombylans* and the propodosoma bears two primitive red eyes. The body measures 250μ long and 140μ wide. The stout posterior and anterior legs are 220μ long tipped by two long, slender and curved claws 20μ long, nearly a tenth of the leg length, with an empodium between nearly half the length of the claws. With these kinds of grappling hooks the ability to board a passing meal is greatly enhanced. These claws fold back through 180° to lie flat on the upper surface of the leg and are probably held in that position when running using the empodium for adhesion and only coming into use for a firm hold when feeding. Ventrally, at the base of each leg, a long, plumed and curving hair is situated, approaching half the leg length. Quite possibly, rich chemoreceptors on these hairs convey information regarding the best site at which to dine.

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LARVAE OF THE LARGE WHITE (*PIERIS BASSICAE*) FOUND IN FEBRUARY

by Barry Dickerson (8422)

On the morning of 25th February my wife, Sheila, noticed, while picking some shoots from the purple sprouting broccoli in our garden, a larva of the Large white feeding on one of the plants. That dinner-time she told me of her discovery, so I went to the plants to see if I could find the larva. After a quick look along the rows of plants I noticed one plant at the end of a row that had some damage to its leaves. A close inspection of this plant led me to discover ten larvae. One of the larvae was in its second instar while the other nine were at the fourth instar stage.

Although this has been a mild winter we have had several frosts, the most recent being just two days previous to my wife's discovery when the night temperature fell to minus two degrees C. To survive these low temperatures the larvae must be hiding deep inside the foliage of the plant coming out to feed as the temperature rises during the day.

It does seem with the milder winters we are now having that the larvae of the Large white can manage to survive. I looked for them earlier today and found them still on the purple sprouting but they are showing no signs of growth.

A SECOND RECORD OF *HIPPARCHIA ALGIRICA* FROM MALTA

by Anthony Seguna (6635F)

"Redeemer" 6, Triq l-Emigranti Naxxar, Malta

Whilst photographing butterflies with my daughter Amie on 1st June, 1992, at Fort Bingemma limits of Mgarr, I came across a butterfly which I thought was somewhat different from the Meadow brown, *Maniola jurtina hyperhispulla,* a common endemic butterfly. I boxed it and on closer examination I noticed that it was completely different from the Meadow brown.

At home I tentatively identified it as belonging to the genus *Hipparchia.* I telephoned my friend Paul Sammut of Rabat to inform him about this record. The next day I took it to him, still on the setting board, and he confirmed it as *Hipparchia algirica.* It was further identified as the nomenotypical form which flies in North Africa. The prevailing strong wind prior to and on the day the butterfly was recorded was south and south-east, so the butterfly could not have been blown here from Sicily. The butterfly was still in perfect condition.

Another *Hipparchia algirica* was recorded from Naxxar by the late Anthony Valletta on 23rd May, 1939. This specimen was at one time considered to belong to a different and new subspecies, ssp. *vallettai* De Lattin. However, this subspecies has been synonymised with the Sicilian subspecies *blanchieri.*

I would like to thank my good friend Paul Sammut for the constant help he gives me in identifying lepidopterous insects.

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BOOK REVIEW

Insects of Panama & Mesoamerica: selected studied. Edited by Diomedes Quintero & Annette Aiello. Hardback. Quarto, pp.692, illustrated. Oxford University Press, 1992. ISBN 0 19 854018 3. Price £95.00.

This book is a detailed study of various orders of insects occurring in this region of South America and gives us an insight into these, rather than solely the butterflies for which the region is more noted and on which far more books have been published. This is a multi-author book, the subjects being dealt with by various experts in their fields and ranging from Embids through Zoraptera to nocturnal butterflies, the whole being competently edited and drawn together by the two editors, both of whom are well-known experts in the entomology of the region.

Restricting legislation, which by and large appears to be targeted mainly at the lepidopterist, because the beauty of his field of study arouses highly emotive issues, makes it more and more necessary for the entomologist to switch his interests to other orders and this book is a good grounding on which to base an interest and study of central American insects of some of the other Orders. The various subjects discussed here give an insight into just how fascinating "other Orders" can be. There is also far more to be found out about them, which is another good reason for taking up the study of them.

This book, therefore, concentrates on these smaller and lesser-known groups. It commences with a couple of chapters setting the geological and biogeographical details of the region, which being at the confluence of North and South America serves as a mixing area in a state of flux as species move to and fro and intermingle.

There is an extensive taxonomic treatment of the Ephemeroptera and three chapters deal with the Dragonflies which includes a particular study of the clubtail species (Gomphidae) and giant damselflies (Pseudostigmatidae). New species of that web-spinning group of insects which emulate in some ways the true spiders, the Embiidina, are dealt with; indeed, several new species are described. Katydids, crickets and mole-crickets are listed, described and keyed. There are single chapters on Plecoptera, Dermaptera, Zoraptera, Psocoptera, Strepsiptera, Thysanoptera, Neuroptera and Mecoptera. The Homoptera and Heteroptera are dealt with in four chapters, which are particularly useful and informative as, apart from the well-known cicadas, they deal with ecological diversity of tree-hoppers and the larvae of plant-lice, as well as those rarities among insects, *marine* species. The five chapters on Coleoptera deal with lesser-known species; leaf-rolling weevils, tortoise beetles, bess beetles and mould beetles, this last including a catalogue of the species to be found and new taxa described. The Hymenoptera section consists of chapters dealing with stingless bees, velvet ants and fungus-growing ants. Two chapters are devoted to the Trichoptera, one being a catalogue and the other a review of their classification and biology. Three chapters are devoted to the Diptera and all deal with large species. Robberflies (Asilidae), Big-headed flies (Pipunculidae) and the Pantophthalmidae.

In spite of my earlier remarks, there are in fact five chapters on the Lepidoptera and one of these deals entirely with the unexpected. Night-flying butterflies, the family Hedylidae, are shown to have much in common with the Pieridae. Details on the early stages of these are presented for the first time. Another chapter discusses the clicking genus *Hamadryas* and a catalogue of the Panamanian Nymphalidae is given in the third, while the fourth discusses dry season strategies of a couple of species. From the lepidopterist's point of view, however, particularly the would-be rearer, the star item is the very extensive (18 pages) and well-illustrated article on the reproductive behaviour, life-history and ecology of *Urania* moths. It is sad to learn that *U. sloanus* is believed to be extinct.

For those needing a quick browse, abstracts of all the chapters are given in English and Spanish and the book ends with taxonomic and subject indices. Like all multi-author books the treatment varies; from a checklist of species to detailed biology to a mix of both. All is of a high standard and while I would query the description of new taxa in an expensive book rather than in a journal, the wealth of detail here given on the "lesser orders" makes if essential reading for those wishing so study insects in Central America and the surrounding areas.

Brian O.C. Gardiner

FURTHER RECORDS OF THE SPECKLED WOOD AND GATEKEEPER BUTTERFLIES IN STAFFORDSHIRE, 1992

by Jan Koryszko (6089)

Since my last report (*Bulletin* **51**: 103) further records during 1992 show the further spread of these two species in the county. On 6th August I took a single specimen of the Gatekeeper (*Pyronia tithonus*) at Barlaston Rough Close Common. This is the first record for the area. It has also been reported from Roughcote again — a single specimen.

On 3rd September I recorded an example of the Speckled wood (*Pararge aegeria*) at Barlaston Rough Close Common. This is the first record for 25 years. Again a single butterfly — it was a pleasure to see it again. It took me back to 1967 when I was a schoolboy and first saw this species. In those days it was quite scarce.

Other records during 1992 of the Speckled wood; a few at a garden in Normacot, Mr Alan Flannagan; also reported by Mr R.G. Warren in his garden at Trentham; further records from gardens in the Meir area. It seems that these two species may well become common in a few years in the county, as did the Small skipper (*Thymelicus sylvestris*), which started spreading in 1970, and by 1983 was common everywhere except on the moors and this remains the case today.

Maybe recent mild winters or more suitable grassland for the larvae in the county may be the reason for this. It will be interesting to see if other grass-feeding species in Staffordshire follow similar patterns.

MOTHS AND MATHS

by Paul J. Palmer (7163)

Old Bakery Cottage, 9 The Sands, Long Clawson, Melton Mowbray LE14 4PA

For many years I have run a variety of home-made moth traps in the garden — much to the amusement of friends and neighbours. The last few have been of increasing sophistication. A move to Long Clawson in Leicestershire coincided with the completion of my first mercury vapour trap. Constructed of wood and glazing quality uPVC, the trap is much like a square version of the commercially available Robinson trap.

A new MV bulb loses some 20% of its brightness in the first few hours of operation; the light was so bright on the first night that even I felt a twinge of embarrassment as the house and trees were lit up with a light that could be seen from the top of Clawson Hill. Within a few days total strangers knew me by name, and I found that news about the purpose of the light had spread far and wide. Even picking my children up from cubs was greeted with cries of: "It's the moth man — it's the moth man".

I have become interested in the way in which the catch in moth traps varies both from place to place and through the season. For the past four years I have used a computerised database to collate the records, but the system lacked the in-built capability to perform complex manipulations of data, and I lacked the inclination to write dedicated software to do it for me. However, the system did allow me to produce lists sorted with respect to species and location, and as it has always been my custom to do an exact count of each species, the system has been a great time saver at the end of each year when producing an annual report.

Recently a course undertaken by my wife necessitated the purchase of a more powerful computer for home use. With it came Lotus Works, a combined word processor, database and spreadsheet. This translates to a super new way of collating moth records, calculating statistics and illustrating the results with graphs. The system was set up early in March 1991, and by the end of December the database held nearly a thousand records of some 160 identified species of moths.

The year 1991 was not without incident; at the end of May I broke my ankle, an injury which curtailed all field trips through the summer and which severely limited the use of the trap until the end of July. The gap in the data can be seen clearly in all the graphs.

Sorting the contents of a trap single-handed is quite a chore, although I did have the benefit of "help" from various children. Shaking egg box trays into deep herbage was the choice job until a particularly fine moth was found. They would then "oh" and "ah" whilst I had to finish the rest of the trap unaided. The moth would be deposited into a safe resting place only after a great deal of persuasion, a task which could take almost as long as emptying the rest of the trap. In this way their generous help could almost double the duration of the task. Eventually I found the best method was to use a cassette recorder with a tie clip microphone. This permits freedom of movement and allows rapid recording of species. One does have to overcome a certain sense of embarrassment about talking into thin air. I suspect that the neighbours, unable to see the microphone, thought that I had gone quite mad when they saw me hunched over the trap talking to myself. The records can later be transcribed at leisure into a log book and from there onto a computer.

My main purpose here has been to explore the changing contents of the trap and present the results graphically using a computer as a tool. Although there is no reason why the graphs could not be plotted by hand as the season progresses, the task would be daunting for all bar the most dedicated. The use of the computer brings the effort required down to that which makes it feasible for the keen amateur (like me) to take on. The reader will rightly suspect me of having a more than average knowledge of electrical matters and computers and may feel somewhat daunted by the prospect of emulating such an approach. However, one

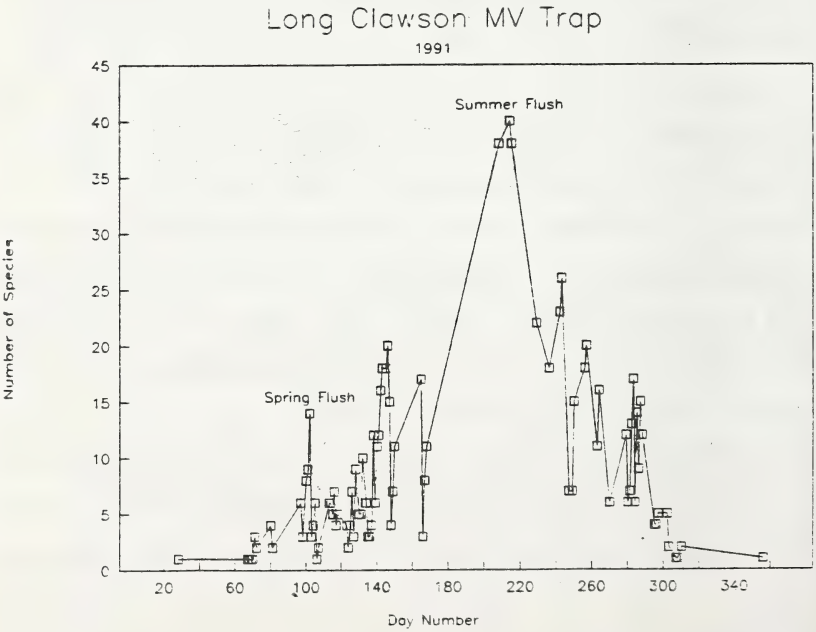


Fig. 1. Number of moth species caught in the trap showing the variation through the year.

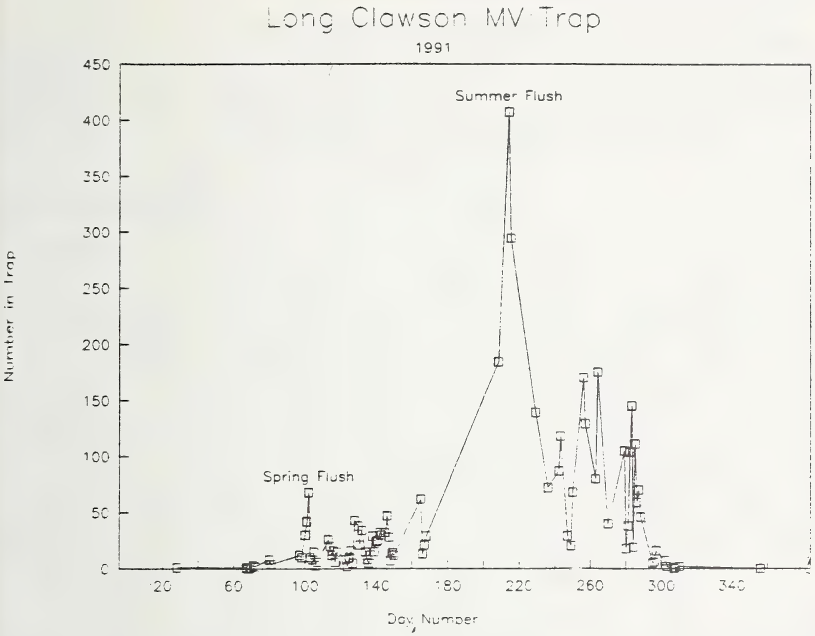


Fig. 2. Number of individual moths caught in the trap on the same time scale. Note the similarity between the two graphs.

of the functions of groups like the AES is to encourage sharing of knowledge and I will gladly share more detailed information with anyone who cares to correspond with me.

Three graphs are of particular interest and a commentary on each follows.

Species Versus Day Number: Numbers in Catch Versus Day Number

The peak labelled "spring flush" happened on 12th April and stood out from the surrounding days both in the number of species and the number of individuals caught. This flush in the trap was not exceeded until the end of May! This confirmed a suspicion formed in previous years of such an event. Perhaps it is triggered by the first warm spell of spring. The commonest group in the catch at this time of year are *Orthosia* spp. and these clearly have a well-developed proboscis for feeding — does this flush coincide with a similar peak in the abundance of nectar?

Unfortunately the break in the recording (due to the break in my ankle!) occurred over a period when the size and number of species were increasing. While the peak looks sharp, it is impossible to tell if it really is this sharp or should be much broader. Only another year's records will tell.

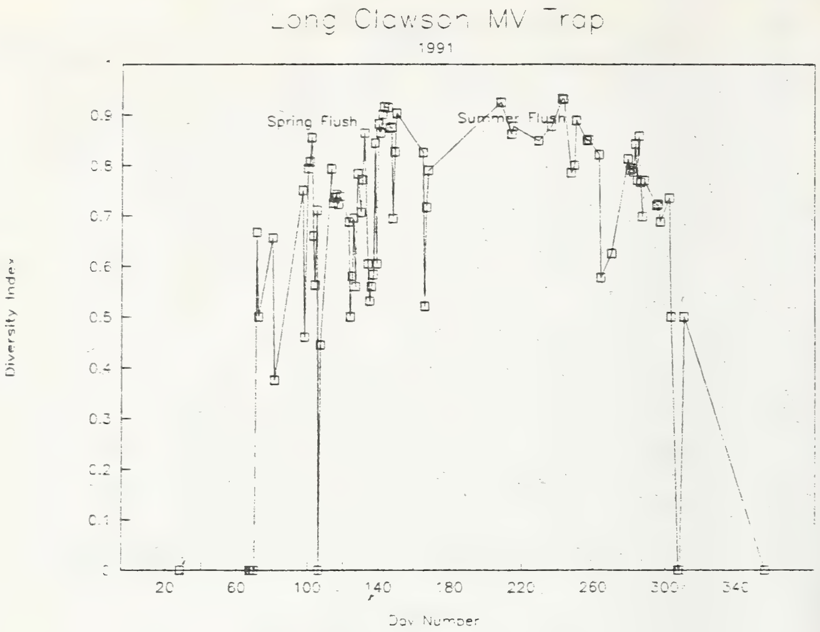


Fig. 3. Variation of Diversity Index through the year. Note the rapid short term variations.

Diversity Versus Day Number

The number of moths caught can be combined with the number of species to give a measure of the diversity in the catch. In principle the measure of diversity should be independent of the size of the sample. One measure of diversity is the Simpson Index:

$$D=1-\sum_{1}^{N} (P_i)^2$$

D = Simpson's index of diversity
P_i = Proportion of species i in the sample

There are other measures of diversity; I chose this one because it was the easiest to calculate given the way I had organised the data.

Very small catches lead to widely varying measures of diversity, so perhaps it would be better to ignore all samples with less than say 30 moths. Even so, it is clear that measured diversity changes over very short timescales. Again, the spring flush is apparent as an event early in the year, with the measured diversity not being equalled until some eight weeks later. Curiously the summer flush, so obvious in the previous graph, is not a peak in the diversity. This is because the catch is dominated by relatively few species.

While there is nothing earth-shattering in these graphs, they do illustrate how entomological data can be presented by the use of a computer using readily available software. For me this has provided an enjoyable extension to my continuing interest in entomology.

BOOKS NOTICED

by the Editor

I hope Mr Lewis has changed his mind and not carried out his threat to tear his hair out (*Bulletin* **50**:144), for he has good enough reason since Butterfly Books are appearing like confetti at a wedding. Quite frankly most of them are a case of ''churning'': buying and selling in order to generate commission. In the case of books, re-packaging the mixture as before in the hope the punter will not notice. A butterfly is a butterfly and the facies of species has not changed since Albin 1720, Wilkes 1741 or Moses Harris 1766. Any edition of ''South,'' a book that remained in print for some 50 years can still be used for identification and ''Higgins and Riley'' is still the best book for European species — apart from those in French, German, Czech that is.

Readers will note that I give below a choice of prices. These are those at which I have noticed the books being offered in April, varying from catalogues, Dillons, Waterstones, Booksave and various ''Remainder'' bookdealers. So much for the Net Book Agreement!

So what is new? Well there is *Green Guide: butterflies of Britain and Europe* by Robert and Rosemary Goodden, New Holland Publishers 1993. Price £3.99. No, this is not new. It is *The concise guide to butterflies of Britain and Europe* by Robert and Rosemary Goodden, in a new wrapper. New Holland Publishers 1991 and still in print. Prices £5.99; £2.95: £1.99. The text and illustrations in both titles are identical. Very reprehensible.

Messrs Letts, of diary fame, have just launched a series of ''Pocket Guides'', one of which is *Letts pocket guide to butterflies* by Pamela Forey and Sue McCormick, Charles Letts and Co. 1993. Price £3.95. The text and headings of this book are printed in a plethora of coloured boxes. While this saves printing sub-headings it does not save it from the very confusing illustrations. True, the actual size of the butterflies is given under the English name, but the butterflies' size in the actual colour illustration is completely random. For instance, on facing pages, the Marbled white is larger than the Two-tailed pasha and the skippers are enormous. The quality and accuracy of these illustrations (not attributed) are not as good as the above mentioned titles, nor in some of those mentioned below.

Also just published are *Letts pocket guide to insects* in the same format with similar volumes for flowers, dinosaurs, fungi etc. These I have only briefly glanced at and with which I am not very impressed.

Observers butterflies by Paul Morrison, Bloomsbury Books 1992. Prices £3.99: £1.99. This is and is not the *Observer's book of Butterflies* by W.J. Stokoe which was first published in 1953. It is a completely re-written book but — with the rest of the series — is now being re-published under a different imprint. Well-written and with far more information than any of the others mentioned here, the illustrations are both reasonable and, thankfully, show the butterflies to their natural size and being by A. Russwurm after F. W. Frowhawk are of excellent quality.

In the same series is *Observers insects of the British Isles* by E.F. Linssen, 1992. Price £1.99. The illustrations in this are nothing like as good as those in *Butterflies,* being distinctly lack-lustre.

Butterflies of Britain and Europe by Allan Watson, published by Kingfisher books. Price £2.50. This has a good selection of the European species in various poses together with a fair amount of life-history information but does not show any of the early stages.

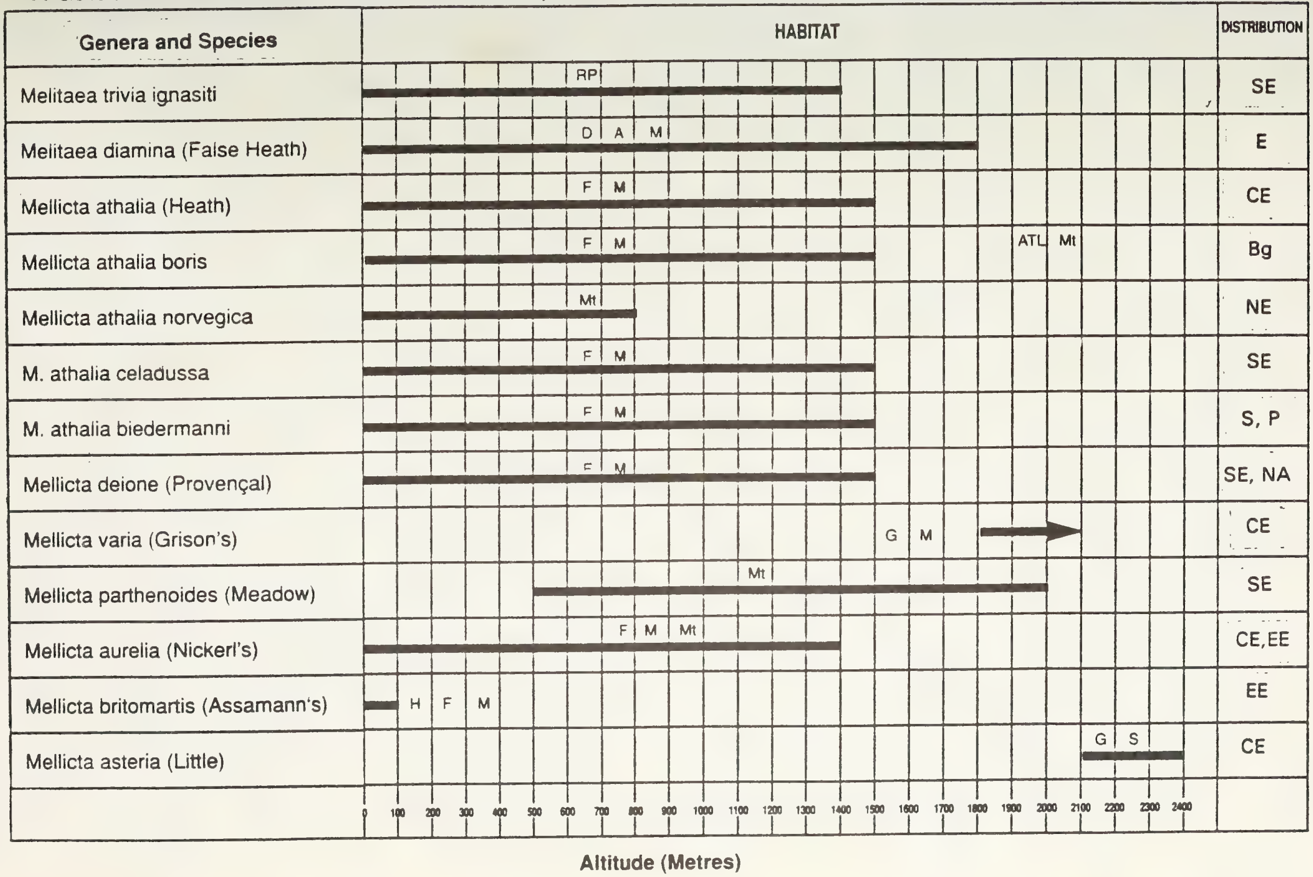
Hamlyn guide: butterflies of the British Isles by Jeremy Thomas, Price £7.99. Contains some good photographs, *au naturel,* distribution maps and coloured life-history appearance histograms, but the early stage illustrations are pretty hopeless. Contains a number of "pretty-pretty" illustrations to demonstrate ecological habitats and perhaps to interest the potential buyer. The text, however, is authoritative. As Hamlyn also publish Hamlyn all-colour paperback: *Butterflies* by Robert Goodden, and Hamlyn Nature Guide *Butterflies* by Paul Whalley (which has far better illustrations of the larvae) one wonders the need for yet a third book in this stable.

Butterflies and day-flying moths of Britain and Europe by Michael Chinery. Collins. Price (paperback) £8.95. The great advantage of this book is that not only does it include moths that can be confused with butterflies, but also a great deal of biological and other information. In the new edition of *Insects of Britain and Europe,* however, the new printing has used such thin paper that the colour illustrations show through onto the verso text!

Anyone in search of a real bargain cannot do better than see if any bookshop near them is offering *A complete pocket guide to British Butterflies* by Margaret Brooks and Charles Knight, prices £6.95; £2.99; 99p. In April I saw a large stack of them at the last price.

I can only conclude that there is a vast public out there somewhere buying butterfly books like there was no tomorrow, otherwise the publishers would not keep churning them out.

A Guide to the Habitats of Fritillaries of Europe & North Africa *(Family - Nymphalidae. Sub-family: Argynninae*



the approaching spring. This shortage of wild flowers made photography publishers would not keep churning them out.

THE ALGARVE — 20th NOVEMBER TO 3rd DECEMBER 1992

by Don Dunkin (1487)

11 Blakes Avenue, New Maldon, Surrey.

After the disappointing weather in South-east England from mid-1992 onwards, an opportunity to spend two autumnal weeks in the south of Portugal was too good to be missed, although it was to be regarded very much as an experiment.

The area selected — Lagos — has been visited previously by my wife and myself during the spring on many previous occasions. To the west of this attractive town, the coastline is rugged and very beautiful; multicoloured rock formations and sandy coves abound with cliff tops alive in the spring with flowers such as *Chrysanthemum coronarium, Oxalis pes-caprae, Borago officinalis, Gladiolus segetum, Centaurea pullata* and various kinds of *Cistus* and small orchids.

Regrettably the visit revealed a great increase in "urbanisation" and the sale of cliff top land for holiday accommodation. The survival of such species as the very local Atherie fritillary must now be in great doubt! This area is shown on Plate U, Fig. 1.

The area provides a habitat for many species of Lepidoptera. I have photographed at least 25 species of spring butterflies, including the Marsh fritillary (*Eurodryas aurinia*), shown on Plate V, Fig. 6; the Green-striped white (*Euchloe belemia*); Scarce swallowtail (*Iphiclides podalirius feisthamelii*), illustrated on Plate U, Fig. 2; The very beautiful Aetherie fritillary (*Melitaea aetherie*), of which a male, a female and an underside are illustrated on Plate V, Figs. 3, 4 and 5. Also the Spanish festoon (*Zerynthia rumina*) and the Spanish marbled white (*Melanargia ines*).

But what were the prospects for seeing butterflies in late November? A check through text books suggested very limited opportunities indeed — perhaps two or three of the familiar overwintering species. From newspapers of previous years, wet weather could be expected with temperatures of perhaps 66°F but with an amount of winter sunshine.

In the event, sunny weather dominated with temperatures of around 70°F being the norm and rising on some days (in selected spots) to just under 90°F. At night, a light jacket sufficed even on the two or three occasions when cloud, mist or rain descended over the area.

Away from the hotels and houses (where bougainvillea, lantana, hibiscus and other semi-tropical plants as well as pelargoniums were much in evidence), flowers were relatively scarce although new growth was everywhere to be seen in and around the cliff top hollows, heralding the approaching spring. This shortage of wild flowers made photography difficult and the use of macro flash guns and slow speed slide film was abandoned in favour of 200 ASA Kodachrome and print film. Long walks over the cliff tops were also found to be less productive than a ''sit and watch'' technique, aided by a pair of binoculars. (This technique also provided opportunities to witness the antics of Sardinian and Cetti's warblers (*Sylvia melanocephala* and *Cettia cetti*) and the Black redstart (*Phoenicurus ochruros*) in their quest for berries.)

During the journey from Faro Airport to Lagos, in hot sunshine, a number of Large and Small whites (*Pieris brassicae* and *P. rapae*) were seen fleetingly; these butterflies were much in evidence throughout the period, the Large white being the commonest species noted.

The Painted lady (*Cynthia cardui*), the second most frequent species, was also noted on 20th November and was to be seen throughout the period. Some specimens were in very good condition although none were the equal of the fresh salmon pink specimens to be encountered in the Algarvian spring.

The 21st November revealed a female Bath white (*Pontia daplidice*). The Wall butterfly (*Lasiommata megera*) was also seen (and again on the 26th, the latter specimen being a male in excellent condition). A Red admiral (*Vanessa atalanta*) had also established a territory and was to be seen throughout the period, occasionally chasing (or flirting with?) rivals.

The appearance of two fresh Green-striped whites (*Euchloe belemia*) on 22nd November was a surprise although the experience was not to be repeated until 3rd December when a number were seen in a nearby location including one which allowed photographs to be taken. The photographed specimen was very fresh, very beautiful and with the under-hind wing stripes very well developed. (Should these specimens be viewed as part of a 3rd or 4th brood, or as a first brood?)

On 26th November, Lang's short-tailed blue (*Syntarucus pirithous*) was noted; this species favoured the new growth of wild lupin which is common in the area and photographs of the butterfly laying eggs on this foodplant were taken on 3rd December. A Clouded yellow (*Colias croceus*) was also seen and again on 28th November. Speckled woods (*Pararge aegeria*) appeared also and every day thereafter until the weather deteriorated (temporarily) on 1st December.

On 28th November, what appeared to have been a Cream spot tiger (*Arctia villica*) flew over our heads and disappeared into deep scrub in a valley below. Attempts to confirm identity were denied despite braving the dangers of navigating sandy, steep and very prickly hill sides!

The final addition to the list of butterflies seen was the Small copper (*Lycaena phlaeas*) on 3rd December; a colour-worn specimen! On the same day, a specimen of the Crimson speckled moth (*Utetheisa pulchella*) was discovered at rest beneath a street light. Throughout the period, most evenings were relatively mild and street lamps attracted various examples of microlepidoptera. Most of these remained on the white-washed walls throughout the day, some specimens staying without changing position for up to four days.

The only problem with photographing them was the curious glances from tourists who could not quite see why someone with a large camera should be lying face down taking pictures of a small section of white wall!

By far the commonest types of insects observed, in number and in variety, were Hymenoptera, especially solitary and parasitic wasps which were to be seen with prey ranging from large paralysed caterpillars to large woodlice. The sandy and sheltered hollows are ideal habitats for these attractive creatures which were present in abundance. They also provided a home for a tiny but effective tabanid fly which was quite able unerringly to locate the vein behind the ankle bone — with or without socks!

Even at such a late time in the year, the Algarve offered much and the experiment was well worth while. The next time, heavy clothing will be left at home and (perhaps) the Hymenoptera will be looked at a little more closely.

BOOK REVIEW

Butterflies of Bulgaria by Stalislav Abadjieu.

This is a new venture by Veren Publishers of Sofia and will appear in seven parts. The text is in English, size A5 with paperback. The author is a graduate in Entomology of the Sofia University and has a wide knowledge of his country's butterflies. Part 1 is now published and covers information on the geography of Bulgaria and a history of work done there on its butterfly fauna. There then follows a detailed review of the families Papilionidae and Pieridae, each species being considered as to its taxonomic status, its sub-species, distribution, flight period, habitat, early stages, ecological preferences and conservation. There are no plates in Part 1 but Part 2 which is due in June 1993 will have 16 colour plates and will cover the Satyrinae and Libytheniae. Part 3 will deal with the Nymphalinae, Part 4 the Lycaenidae, Part 5 the Hesperiidae, Part 6 Zoogeography and Part 7 Ecology. The cost of Part 1 is £9.00 and Part 2 will probably be £12.00. The series should prove invaluable to anyone visiting Bulgaria to study its butterfly fauna. If members are interested, copies may be available through our Publications Agent who would be able to order in bulk from Bulgaria if the interest warrants it.

PWC

SWALLOWTAIL

Rich
Bright yellow
Banded
Veined with black
Shows sharp the sun
Caught in your dappled net of wilful
flight
Over reed-reflecting waterways
Over shiny paths you fly repeated

Until at rest
A greenish underwing depicts a leaf in
all respects
Prevents the fenman
Fortune hunter
Bounty-bound upon your life
Now protected by rule of man
A curious thing

In larval stage
Light emerald hooped in darker blue
Wandering
Ever consuming fennel
Feasting well until pre-determined time
of torpor
Into another guise
Girded in shades of autumn trees

Silent scene of transformation
Beast into splendid form
By chemical re-evaluation
The universe resolves
All hopes and dreams
Here no myths of re-creation

Papilio machaon britannicus
With scientific precision
Latin-labelled
Identifies
From other European cousins
Your island race
In fenland refuge safely hiding
Like Hereward avoiding the hand of
Norman extermination

Avoiding in bold profusion
The museum's dusty maw
Where archivists lurk—
The uncomprehending gaze
Rapt upon mute remains
In strictest line
Ranked witnesses
To sunlit ways decorated with
Your special poetry

Now gold
Now looping black against the sun
Now soaring
Flight uplifts in joyous rapture
Confirms proud beauty's residence here
To sport and play ecstatically
Over shiny paths fly undefeated.

Don McNamara

LONG-WINGED CONEHEADS MATING

by C.W. Martin (7962)

In September 1991 I was fortunate to be able to photograph the Long-winged conehead, *Conocephalus discolor,* mating, and two views of this activity are shown on Plate W, Figs. 7 and 8. This occurred in a field of rough grass that I own in west Sussex, and which also contains various shrubs and trees. The other Orthoptera that I have seen on the field are:-Lesser marsh grasshoper, *Chorthippus albomarginatus*; Meadow grasshopper, *C. parallelus*; Field grasshopper, *C. brunneus*; Speckled bush-cricket, *Leptophytes punctatissima*; Common green grasshopper, *Omocestus viridulus* and the Dark bush-cricket, *Pholidoptera griseoaptera*.

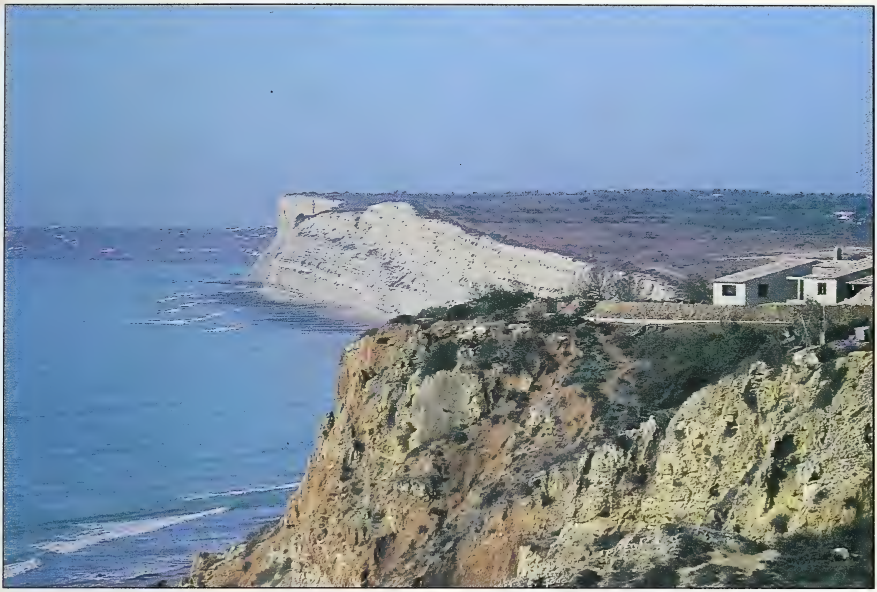
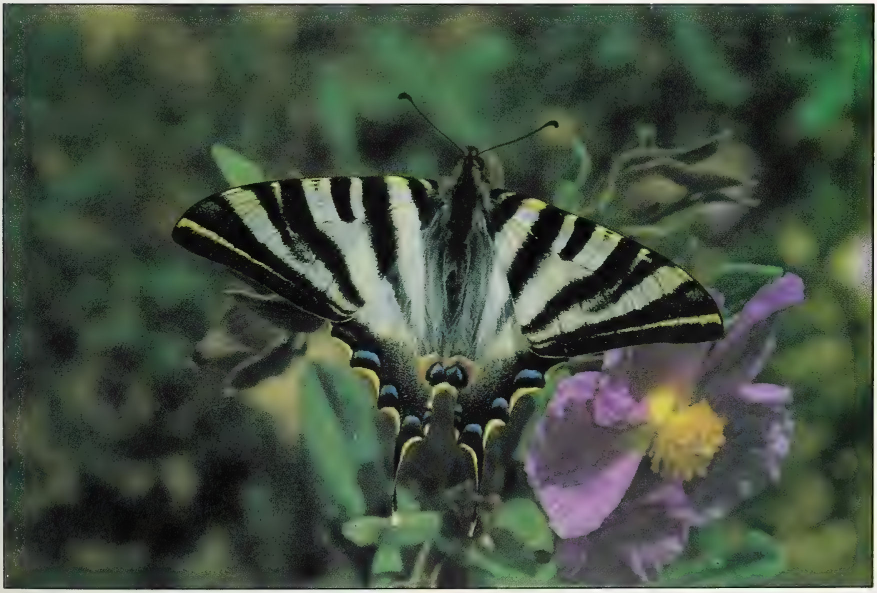
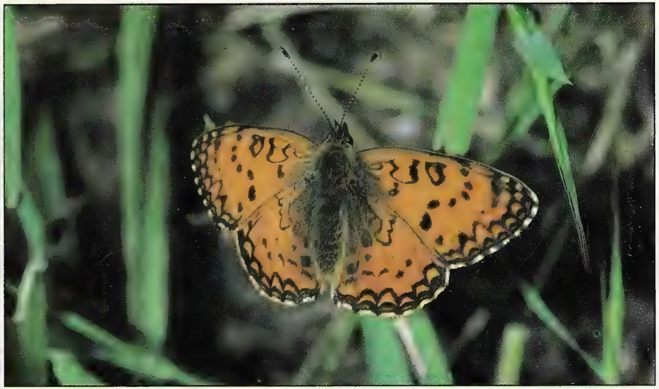


Fig. 1. Port do Mos area, view from west, habitat of Aetherie fritillary.

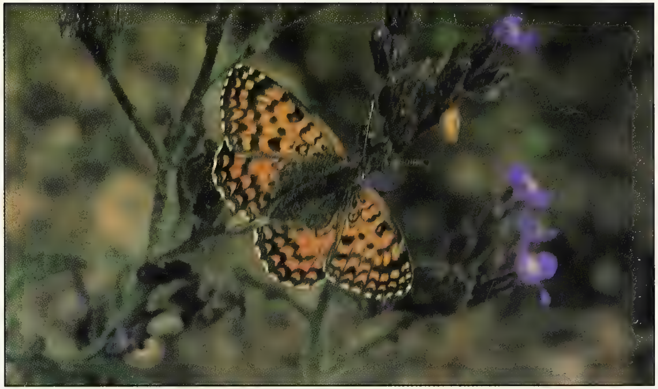


2. Scarce swallowtail, *Iphiclides podalirius* form *feisthamelii*.

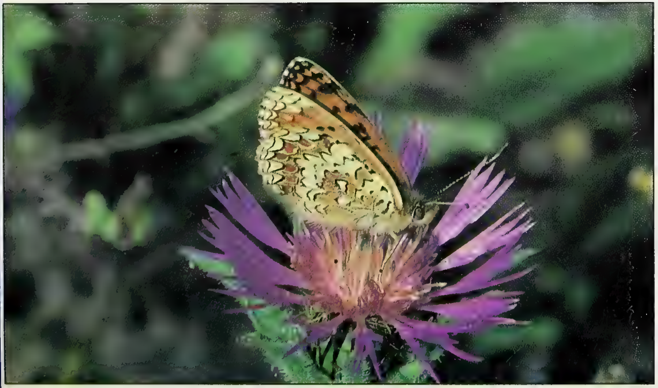
PLATE II



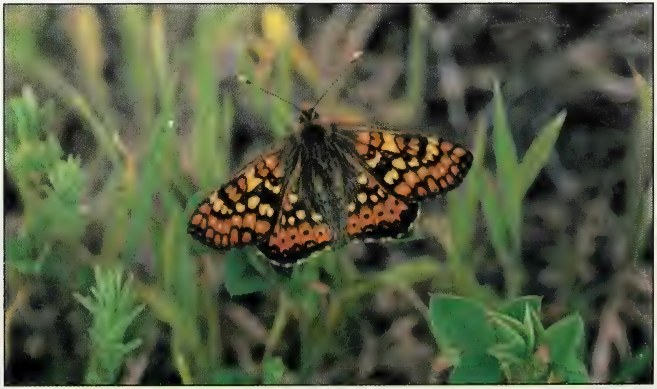
▲ Male Aetherie fritillary, *Melitaea aetherie*.



▲ Fig. 4. Female Aetherie fritillary, *Melitaea aetherie*.



▲ Fig. 5. Male underside of Aetherie fritillary, *Melitaea aetherie*.



▲ Fig. 6. Marsh fritillary, *Eurodryas aurinia* form *beckeri*.

PLATE V

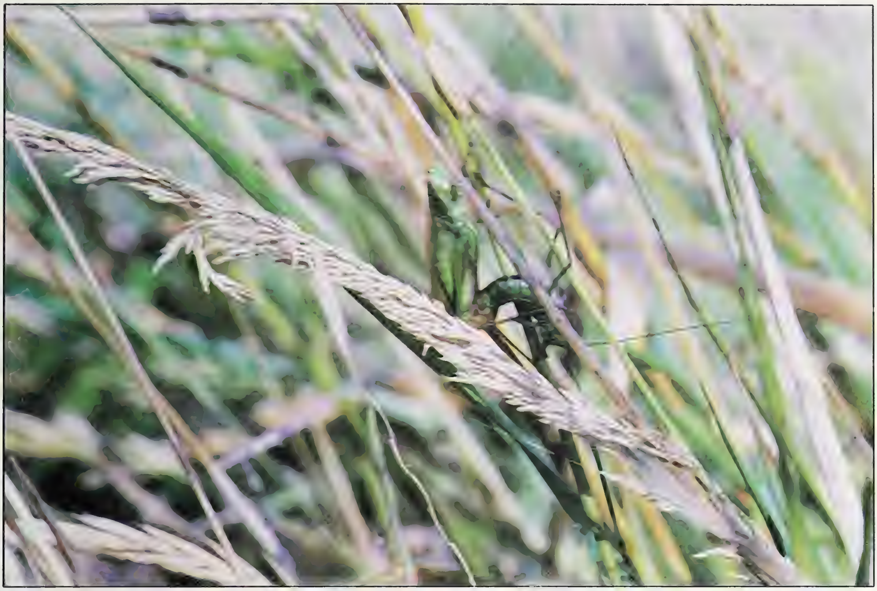


Fig. 7. Long-winged coneheads, *Conocephalus discolor*, mating.

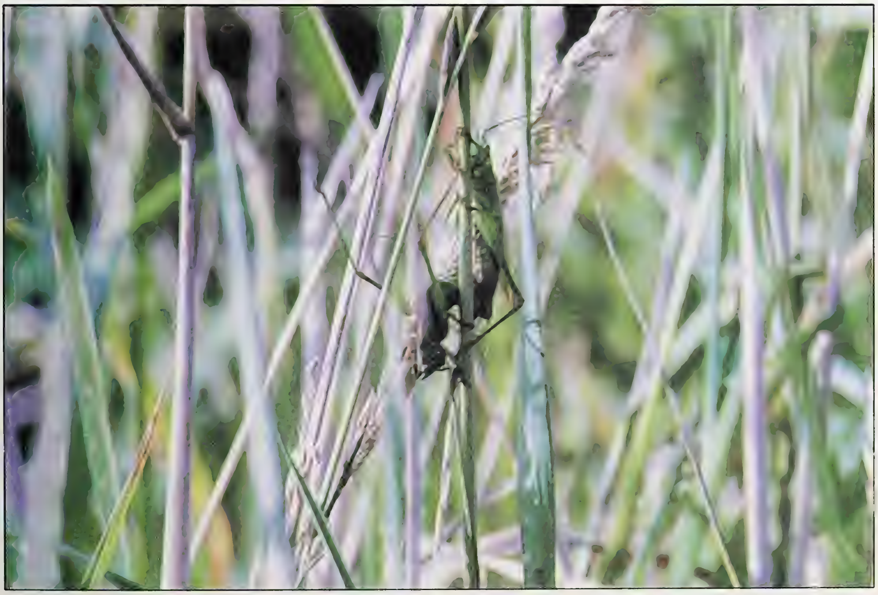


Fig. 8. Long-winged coneheads, *Conocephalus discolor*, mating.

PLATE W

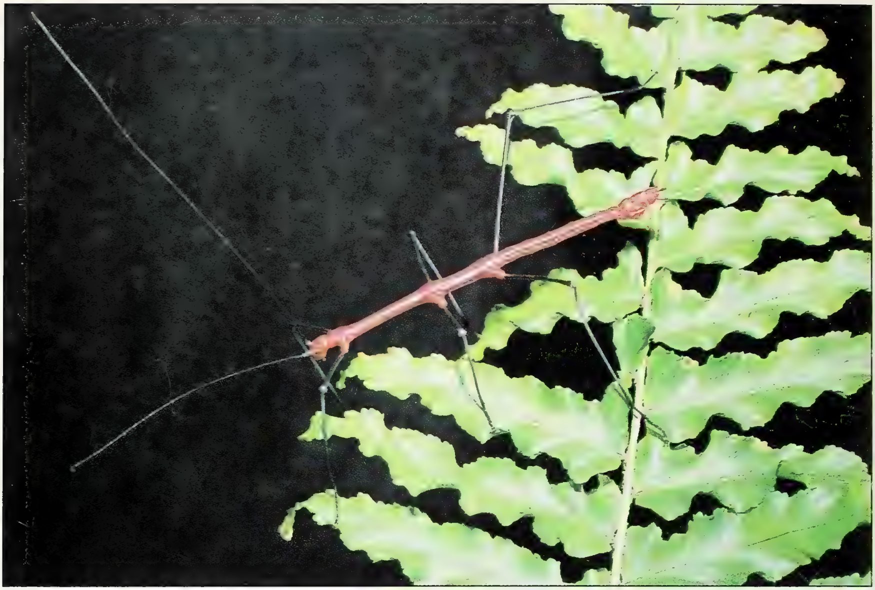


Fig. 9. Male Peruvian stick insect, *Oreophoetes peruana*.

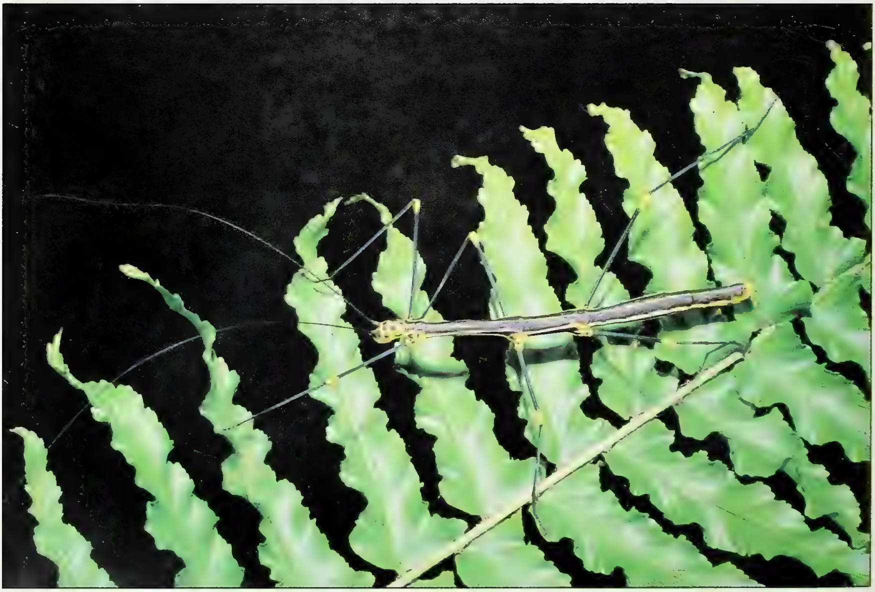


Fig. 10. Female Peruvian stick insect, *Oreophotes peruana*.

PLATE X

OREOPHOETES PERUANA — A VERY UNCONVENTIONAL STICK INSECT!

by Dorothy Floyd

Small-Life Supplies, Normanton Lane, Industrial Estate, Bottesford, Notts NG13 0EN.

The Peruvian stick insect, *Oreophoetes peruana,* is unconventional both in appearance and behaviour. Instead of being a shade of brown or green, the adult male is bright vermilion red and the adult female is yellow and black with pale green stripes! The staple diet of most stick insects is bramble/blackberry leaves but this is not acceptable to Peruvians — they eat fern. The Peruvian stick insect is also much more active than many other species. It walks in a dainty manner and has magnificently long antennae which sway behind. They are regularly cleaned by being passed through the insect's mouth. Peruvians are being kept successfully in captivity and this will now be described.

EGGS

Each female lays about 50 eggs. This is a relatively small number; most other stick insects lay hundreds of eggs (e.g. the Thailand species *Baculum thaii* lays over 700!). The eggs are dropped to the ground. They are round, dark grey, and are approximately 3mm in diameter. The eggs should be collected and stored on some damp kitchen roll inside a closed container. If kept damp and at room temperature, the eggs start to hatch after two to three months. The hatching rate is high and the insects emerge at night.

NYMPHS

The newly-hatched nymph is approximately 28mm long. It is black but its head, tip of abdomen and "knees" are yellow. The insect should be placed on some wet fern and kept in a closed container with no ventilation.

After a few weeks the insect undergoes its first moult. Peruvians do not follow the standard shedding procedure of other stick insects. Usually, when a stick insect sheds its skin, it frees its new antennae and legs *before* pulling its abdomen out of its old skin. The Peruvian stick insect pulls its legs and abdomen out first and leaves freeing its antennae until *last*. As a result, the "new" insect has its entire old skin attached to its antennae. If the feet on the old skin are still hooked onto a surface, the insect can pull out its antennae and complete the moult successfully. However, if the old skin has fallen off, the insect has the impossible task of pulling its whole skin off its antennae by using its front legs! In these situations one can manually intervene and, provided the old skin is still wet, peel it off the antennae. This must be done carefully though, because if an antenna is broken, the insect usually dies. (This extreme sensitivity to antennal damage is very unusual for a stick insect. Most stick insects can cope with damaged antennae and if they lose one altogether they simply regenerate a leg onto their head at their next ecdysis.)

As the nymphs grow larger they should be transferred to a well-ventilated cage. Large nymphs retain the yellow and black coloration and also have longitudinal pale green stripes. It is possible to differentiate the sexes by looking under the tips of their abdomens. This area will be a uniform yellow on the male but yellow with a central black longitudinal line on the female.

The sexes cohabit well until the male attempts his final ecdysis. If this occurs at night, the females are likely to knock him off the side of the cage, preventing him from becoming an adult. It is therefore recommended to keep penultimate instar males separately so that they can complete their final ecdysis successfully.

ADULTS

A *red* male emerges from his old skin and is illustrated on Plate X, Fig. 9. As he waits for his new skin to harden the colour deepens to a bright vermilion red shade. His legs are black with red "knees". He has a total length of 150mm. The adult female (Plate X, Fig. 10) remains yellow and black with longitudinal pale green stripes (although occasionally a female will have orange areas instead of yellow.)

After a couple of weeks the insects are ready to mate. The male (kept separately before his final ecdysis) must now be returned to adult Peruvian females or very strange mating behaviour will result! Lone males attempt to mate with anything: the mesh in the cage; even other species of stick insect, including the massive Malaysian species *Heteropteryx dilatata*. This is most unusual behaviour for stick insects.

Mating usually lasts for several days. The male rests on top of the female with the tip of his abdomen curled underneath hers. The female walks around during this time and both insects eat independently. The insects mate many times during the rest of their lives which is about six months.

DEFENCE

For their passive defence, Peruvian stick insects rely upon their "warning coloration", i.e. their yellow and black, or red, bodies. Birds do not usually attack insects with warning coloration as they have learnt that these insects are often poisonous. The Peruvian stick insect also has active defence mechanisms. It readily emits a defensive odour which clings to the fingers. If further alarmed, the insect will exude a white liquid from its thorax. This soon dries and so it is best to spray the insect with water to wash it off. Despite this, it is safe to handle Peruvian stick insects. They do not harm other stick insects and so can be kept in a cage with other species.

FOODPLANT

Peruvian stick insects eat fern. They will *not* eat bramble/blackberry leaves which are the staple diet of most other species of stick insect.

Wild ferns.

Fern leaves can be gathered from damp wooded areas for most of the year (except during hard winters). There are over 50 species of fern native to Britain and those species tested by Peruvian stick insects are shown in Table 1.

The fern should be stood in a jamjar of water to remain fresh and placed in the cage. The leaves need to be sprayed daily and replaced

Table 1.

Fern species	**Unsuitable**	**Suitable**	**Comments**
Hard shield fern *Polystrichum aculeatum*	●		Has spines that deter the insect from eating
Polypodium vulgare	●		Spores underneath are too thick for the insect to eat
Asplenium trichomanes	●		Too small to be practical as a food source
Blechnum penna marina	●		Too small to be practical as a food source
Harts-tongue fern *Asplenium scolopendrium*	●		Rejected by *O. peruana*
Crytomium falcatum	●		Rejected by *O. peruana*
Soft shield fern *Polystrichum setiferum*	●		Rejected by *O. peruana*
Hard fern *Blechnum spicant*		●	Common in Britain
Male fern *Dryopteris felix-mas*		●	Common in Britain
Ostrich fern *Matteucia*		●	Common in Britain

Table 1. Fern species which have been tested for palatability on the Peruvian stick insect, *Oreophoetes peruana*.

weekly. During winter, most ferns die back or start to yellow. It is important to feed the insects only with green leaves, as yellowing ones can cause fatalities. If insufficient green leaves can be found, potted ferns must be bought.

Potted ferns

Unfortunately, many potted ferns bought from garden centres and florists have been treated with chemicals. If a treated plant is eaten by a Peruvian stick insect, its nervous system is damaged immediately. The insect twitches violently for several days and then dies. The chemicals are systemic and so cannot be washed off the plant; they cannot be flushed out either — at least not quickly. Despite regular watering, treated plants are still toxic even after six months! So, the option of buying a treated fern and waiting several months before giving it to the insects should be rejected. It is therefore necessary to buy chemical-free ferns from a supplier who can guarantee this.

CLASSIFICATION

The Peruvian stick insect was originally called *Bacteria peruana* (Saussure 1868) but was given the name *Oreophoetes* by Rehn in 1904. It appears on Kirby's list (1904) as *Oreophoetes peruana.* (This species is sometimes incorrectly referred to as *O. peruanas.*)

ACKNOWLEDGEMENTS

Thanks to Ken East for helping with the fern research and the British Museum (Natural History) for supplying the information on classification.

STOCKIST

Colour posters of the adult male *Oreophotes peruana,* the insects, chemical-free ferns, cages etc, are available from: Small-Life Supplies, Normanton Lane Industrial Estate, Bottesford, Notts NG13 0EN. Tel: 0949-42446.

FIFTH EUROPEAN CONGRESS OF ENTOMOLOGY

This important Congress, which is being hosted by the Royal Entomological Society, will be held this year in the University of York from 29th August to 2nd September. Subjects to be discussed will include Insect life histories; Habitat management; Population processes and spatial dynamics; Biodiversity; Management of pests and beneficial insects; Insects as indicators of environmental quality and Does taxonomy matter? For further information contact IFAB Communications, Institute for Applied Biology, University of York, York YO1 5DD.

SOME RECENT ORTHOPTERA RECORDS FROM STAFFORDSHIRE AND SHROPSHIRE

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire SR3 7AY.

Common field grasshopper (*Chorthippus brunneus*): Parkhall Country Park, Staffs. Quite common, 26.9.91, and recorded again 1992; Weston Sprink, a single specimen, 26.9.91; Barlaston Rough Close Common, Staffs, common 1991, abundant 1992 above disused sandstone quarry; Burntwood, Staffs, small numbers, 12.9.91.

Mottled grasshopper (*Myrmeleotettix maculatus*): Parkhall Country Park, Staffs. Small numbers, 1991 and 1992, in Lady Corner Marsh. This species is often in associatiaon with other local species and is therefore a useful indicator of good habitat for scarce insects.

Common green grasshopper (*Omocestus viridulus*): One specimen, close to road edge, near pond at Barlaston Rough Close Common, Staffs, 1992; Normacot, Staffs. One specimen on waste land, 1992. This site is now overgrown after the demolition of old terraced houses.

Bog bush-cricket (*Metrioptera brachyptera*): I took a specimen on 2nd July 1992 at Whixall Moss, Shropshire. This was sent to E.C.M. Haes, who confirmed the specimen; he said it is a good, but isolated colony, and an up-to-date confirmation of its presence and nice to have. Also recorded at Whixall Moss, 1947 (Elton), 1953 (Fincher) and found on several visits during the 1980s (John Paul).

House cricket (*Acheta domesticus*): Several seen in an old cellar under biscuit kiln oven at Royal Doulton Tableware Ltd, Regent Works, Longton, Staffs and was often heard singing. The cellar used to be very hot all the year round. It was recorded quite common from 1969 to 1978, but the kiln ovens are no longer there and it may now be extinct.

I would like to thank E.C.M. Haes for confirming *M. brachyptera* and John Paul for confirming in 1991 *C. brunneus* and *M. maculatus*. Also I would like to thank him for writing from Nairobi, Kenya, after receiving my specimens the day he left England to work in Kenya for the Wellcome Trust Research Laboratories.

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HAVE YOU SEEN THE LIGHT?

by K.J. O'Callaghan

23 Stoms Path, London SE6 3QJ.

Bryon Pateman (*Bulletin* **51**: 63) found himself in the following dilemma. Although disciplined strictly to limit the number of moths he collected to one or none, the light source used indirectly attracted both bats and a fox which then consumed greater quantities of moths than he had been initially prepared to see sacrificed.

On vacation in France during August of last year I stayed at a campsite in Châtillon, north of Lyon. There I found that house martins and some quite scary-looking spiders were using municipal lighting in much the same way. I sat by a narrow river at night staring at a street lamp which was surrounded by a cloud of moths. The martins (perhaps only one or two) swooped through the moths about once every minute. I had watched martins' nests on the same vacation though elsewhere, and found them to return to their nests with food every 30 to 60 seconds.

The spiders had installed their webs around a light situated above the entrance to a toilet on the site. The webs were full of insects which had flown towards the light only to become part of the spiders' menu. I watched for as long as it seemed appropriate to hang around outside a communal toilet. Incidentally, Jan Koryszko (*Bulletin* **51**: 191) mentions a number of insects seen inside a lighted telephone kiosk (none of them making a call presumably). Impoverished entomologists it seems do not necessarily have to invest in a m.v. light in order to locate species.

So I'm afraid that Bryon Pateman's concluding dilemma may have been extended somewhat. He asked if he should ". . . shoot the fox, the bats, or the wife?" (who apparently sanctioned the installation of his moth trap). Should he also dispose of electricians responsible for the installation of street lamps and camp-site toilet lights, or even British Telecom? There are those who would agree with the latter!

AN ADULT OLD LADY ABOUT IN JANUARY

by Charles Trimmer (495)

On 6th January this year I found an Old lady (*Mormo maura*) sheltering under a shop window ledge in Lower Parkstone, Poole, Dorset. The specimen was in good condition and thoroughly alive. The weather was mild with drizzly rain. I took it home where it flew about before I allowed it to escape. Since this is a single-brooded species, normally on the wing in July/August, and hibernating as a small larva, this example would appear to be either a late second brood or an adult which had attempted hibernation.

SOME OBSERVATIONS ON BUMBLEBEES IN SHETLAND

by M.G. Pennington (9799)

9 Daisy Park, Baltasound, Unst, Shetland ZE2 9EA.

In my first year in Shetland in 1986, I had been under the impression that the only bumblebee in Shetland was the endemic subspecies *Bombus muscorum smithianus*. Known locally as the Shetland bumblebee, it was recognised for a while as a separate species, together with similar island forms elsewhere in Britain. I was, therefore, rather intrigued to see a few white-tailed bumblebees flying around and in 1992 I finally got round to investigating them.

The ITE Atlas (1980) actually records six species of *Bombus* in Shetland, although of these *distinguendus* had not been recorded since before 1960, *magnus* and *soroeensis* were recorded from just one 10km square each and *hortorum* was recorded from just three. Only two species were reasonably widespread, *muscorum* and *jonellus* (also represented by an endemic subspecies, *vogti*). However, Shetland was undoubtedly poorly covered, a fact which has been confirmed by my own initial observations.

On Unst in 1992 unidentified white-tailed bumblebees first emerged in early May, although I have seen them in April on Mainland Shetland in 1991 and 1992. *Muscorum* was not recorded until 18th May in 1992, and was still scarce at the end of the month.

In August I made 15 visits between the 8th and the 21st to a short transect in waste ground near my house at Baltasound on Unst. I recorded 221 bumblebees of three species with the following totals: *muscorum*: 207 (94%); *magnus*: 11 (5%); and *hortorum*: 3 (1%). Both *magnus* and *hortorum* were new records for Unst and the 10km square (HP 60). I also recorded both species at Norwick on Unst in 10km square HP 61.

Foodplants were recorded on each visit to the transect in August. Of 181 first visits recorded for *muscorum*, creeping thistle (*Cirsium arvense*) was the most popular plant (52%) followed by spear thistle (*C. vulgare*) (34%) and white clover (*Trifolium repens*) (10%). Red clover, (*T. pratense*), hawkweed (*Hieracium*), dandelion (*Taraxacum*) and birds-foot trefoil (*Lotus corniculatus*) made up the remaining 4%. All ten visits by *magnus* were to creeping thistle, while *hortorum* was recorded on spear thistle twice and red clover once. Plants present in the transect but not visited included buttercups (*Ranunculus*), eyebright (*Euphrasia*) and red campion (*Silene dioica*). Earlier in the season emerging queens were seen mostly on dandelions in the transect area.

No heather (*Calluna vulgaris*) was present in the transect area but visits were made to areas of blooming heather elsewhere on Unst in the hope of finding *jonelus,* which is usually a heathland species. However, the only bee seen visiting heather flowers in about two hours' searching was one *muscorum*.

On Shetland mainland my impression is that *muscorum* is not quite so dominant as on Unst, but I do not have any figures yet to back up this observation. The white-tailed bumblebees seen are still largely unidentified, but I have found *hortorum* at two new localities at Grutness (HU 40) and Lerwick (HU 44).

Obviously some species of bumblebees are more widespread in Shetland than previously realised and new species for the islands may be awaiting discovery: there are no Cuckoo bumblebees (*Psithyrus*) yet recorded for example. The species' composition in different localities and habitats will make interesting comparisons, especially as my initial impressions are that bumblebees are very scarce away from crofting land and they are largely dependent upon non-native (to Shetland) plant species.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

The British Entomological and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particular emphasis on:

(a) leaf-miners
(b) Diptera, particularly Tephritidae and Agromyzidae
(c) Lepidoptera, particularly Microlepidoptera
(d) general entomology

in the above order of preference having regard to the suitability of applicants and the plan of work proposed.

Awards may be made to assist travelling and other expenses necessary to fieldwork, for the study of collections, for attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are unlikely to exceed £600 in 1993/94.

Applicants should send six copies, if possible, of a statement of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to Dr M.J. Scoble, Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, as soon as possible and not later than 30th September 1993.

Applications are also invited from persons wishing to borrow the Wild M3 Stereomicroscope and fibre optics illuminator bequeathed to the Fund by the late Edward Pelham-Clinton, 10th Duke of Newcastle. Loan of this equipment will be made for a period of up to six months in the first instance.

INSECTS HELP SAVE DEVON COUNTRYSIDE

by Clive Betts (4976)

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There are precious few happy endings in the battles to conserve our natural environment, and even fewer where the needs of the insect population play a rôle that even approaches the importance they deserve: but this is one of them!

Back in 1989 a number of villages to the north of the City of Exeter began to hear horrific rumours of plans to build a four-lane dual carriageway linking the M5 east of Exeter to the A30 west of Exeter. The Department of Transport (DoT) scheme would cost an estimated £53 million and would (I quote) "save five miles of journey to Cornwall" along with possibly helping congestion in Exeter and at a notoriously badly designed motorway junction.

To get from one side of Exeter to the other the road would have to:

- pass through a large area of National Trust farmland and mixed woodland;
- fly over at least one village, the River Exe and acres of untouched water-meadows;
- plough through, over or into, miles of wooded and pastured hills and valleys renowned for their outstanding natural beauty.

A protest group, People Against the North Exeter Link road (PANEL) was quickly, and enthusiastically, formed, Despite a veil of secrecy from the DoT, PANEL learnt that a much larger corridor of land than initially announced was being surveyed with a view to finding the best route, and if there should be one at all: this survey was what the DoT termed an Environmental Impact Assessment or EIA. The surveyors, however, could also tender for contracts to actually build any road in the survey area!

PANEL knew there was still time to stop the scheme completely, unlike other road plans which are often only contested at Public Enquiry stage (this stage will merely decide between a choice of preferred routes) and therefore opted to compile its own, impartial, EIA, highlighting real environmental concern rather than just engineering problems! I quickly pointed out the importance of insect populations in a natural, balanced ecology and was assigned the task of analysing the potential threat to these populations — which would reflect the threat to the countryside as a whole — in the area.

At the same time as I was compiling this particular report I worked with a colleague on the potential effects of the road on freshwater systems in the area. Using the same source of data, supplemented with records from the very obliging National Rivers Authority, a convincing case was compiled cataloguing major hazards to the natural ecological balance in both running and still water systems throughout the threatened area. It was heartening that a local salmon fisherman and a Wildlife Trust officer drew very similar conclusions in their own, independent, reports.

These surveys were perfectly complimented by a study of the hedgerows in a part of the threatened area carried out by a visiting student from East Anglia Polytechnic. This thorough survey highlighted the species richness and value of these wonderful habitats: insects playing a key rôle in the maintenance of hedgerow ecology.

PANEL's finished 50-page EIA included eleven pages devoted to insects and their ecology! I understand that government-commissioned EIAs usually contain little more than a few paragraphs on the effects of road schemes on local flora and fauna. In December 1991 PANEL's report started on its way to the DoT. Rumours abounded that a route had already been chosen, that work had already started, and that PANEL had been a waste of time and effort.

However, on 3rd March 1992 the DoT announced that it was cancelling the road scheme. The Minister of Roads and Traffic (Christopher Chope) commented that among other factors ". . . a northern bypass would have involved unacceptable environmental damage."

A small victory for conservation. And just in time for the General Election too! All this begs the question *Are we finally getting through to the people that matter?* I fear the answer is *No* since Mr Chope went on to say "But the real problem was that they (the options for the road scheme) would not have attracted sufficient long distance traffic from the motorway to avoid the need for motorway improvements as well."

Postscript: Having been smugly satisfied over the north Exeter link road I have been pulled sharply back to earth by another road-building project here in sunny Devon. These plans have now gone beyond the stage of being stopped or substantially altered, and will see the upgrading of the A30 east of Exeter into a four-lane dual-carriageway. Only the final details of the route are left to be chosen.

At *best* the new road will carve up or destroy a number of mixed woodlands, quantities of ancient hedgerows, and divert a river. While engineers and officials discuss economic benefits, cost-effective routes and development potential, groups like the AES Insect Conservation Committee are the only ones left to point out the losses in terms of natural habitat, species richness and the fragmentation of important wildlife populations. Although we are seldom heard, we must keep on speaking out for the natural world when everyone else is concerned with financial gains and losses.

In terms of road construction there is no evidence that the Government's massive construction programme (discussed in the white paper entitled "Roads for Prosperity") will grind to a halt due to any new-found environmental awareness. Indeed, the road-lobby (a very wealthy group consisting of road-hauliers, the AA and RAC, gravel and aggregate quarriers, tarmac and concrete producers, construction firms, civil engineers etc) will keep up a constant pressure to put as much of our countryside as possible under tarmac. And then, once the developers of service stations, out-of-town shopping precincts and business parks have finished, we shall step back and wonder why all our once-glorious countryside has disappeared.

FURTHER NOTES ON *STREBLOTE PANDA*

by Gareth King (8585)

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I was able to bring back to London several newly-hatched larvae of *panda* on Tamarisk. May 1991 was very cool and this did present problems rearing the species, but I made an effort to keep them especially dry and I also provided them with older sprigs of leguminous plants. However, from late June I gave them bramble leaves which were eaten without incident. The larvae from this brood began to spin-up in early July and the first male emerged on 22nd July.

Fortunately, July, August and the first two weeks of September of 1991 were dry and sunny, which was of immense help in the rearing of this lasiocampid. The imagines tended to emerge early in the morning and would pair in the early hours. The first generation of my "London" brood hatched out in early August and were fed on bramble from the start. This brood fed up very quickly and began to pupate on 18th September. The initial males emerged in mid-October, by which time the weather had deteriorated, but it made little difference to pairing. My winter batch was provided by larvae hatching out in early November. As the flat was centrally-heated no extra heat was deemed necessary. However, central heating or no, the larvae fed up much slower and did not begin spinning their cocoons until 11th January. It was also noticed that the larvae were much smaller than Spanish examples.

Unfortunately, I was not able to continue with a further generation, as when the moths eclosed in February there was a gap between the males emerging and the emergence of the females.

At the time of writing this supplement (August 1992), I expect to be in Huelva next week for a holiday, so I will hopefully locate further larvae of this magnificent moth.

BOOK REVIEW

Common butterflies of India by T. Gay, I.D. Kehimkar & J.C. Punetha. 4to, paperback, pp.67, 8 coloured. ISBN 0 19 563164 1. OUP/WWF, Bombay 1992. Price (Rs. 75) £2.95.

Printed on pale mauve paper this booklet gives a good indication of the butterflies most likely to be encountered by the visitor to India. The coloured plates (on white paper) illustrate 68 species and a few early stages, all to a reduced size and all taken from life, not set examples. Other species and life-history data are illustrated in monochrome, although like so much modern technology in this field, the reproduction is poor, the coloured paper shows yet more species and perhaps because they are so well-known and sought after, this book of common species could not resist the temptation to illustrate the magnificent Kaiser-I-Hind and Bhutan glory; both very rare and difficult to access, even to take a photograph.

The text gives a brief account of butterfly biology including variation, migration and their protective adaptations. Photography, gardening for butterflies and conserving them are discussed; there is an extensive glossary of terms and a very useful list of foodplants. There are no species descriptions, the main text, under each species, describing their habits, distribution in India and how and when best to see them.

Although not of the quality standard of most OUP books, neither is the price, which is extremely cheap and well worth taking on any trip to India, or to a British Butterfly House. Brian Gardiner

BOOK REVIEW

Insects, Letts Pocket Guide to, by Pamela Forey and Cecilia Fitzsimons. 125pp., copious coloured illustrations. A5 hardback. 1992. Price £3.50.

This is one of fourteen Guides currently published by Letts and if the others are as good as this one on the insects, they are a "good buy". Aimed at the uninitiated, this book will serve as an excellent introduction to the insect Orders. The format is easy to follow and there are adequate examples of insects in each Order, vernacular names being used except where none exists, and the illustrations are of high quality. A colour banner heads each page, indicating the insect Order, with an indication of the general size of an adult insect and the number of species in the group found in Britain. There follow the illustrations of examples and then text giving details of life history etc of those figured. Maps are included indicating the countries in western Europe where they may be found but the generality of these is of little value. I found the text well presented and informative though necessarily in broad terms, a useful pocket book for any member. The two latest volumes, published March 1993, are on Butterflies and Mammals. PWC

BREEDING THE PLAIN TIGER, *DANAUS CHRYSIPPUS*

by Aldo Catania (7680)

Zernio, 135 Pembroke, St Julians, Malta G.C.

Attempts at breeding this butterfly in the Maltese Islands have been extremely rare due to the fact that it is very seldom netted. The only previous successful attempt was that of the late Mr Anthony Valletta who raised four adults from eggs laid by a female taken on 21st October 1987.

A fresh female netted on 7th October 1990 from Selmun laid about 30 eggs, which, however, proved to be sterile. This was not my lucky day.

On 16th September 1991, I netted a female, still in fresh condition, in the area of Pembroke. I kept it alive, fed on ripe bananas and "sleeved" with a potted *Asclepias curassavica*. The next day I noticed about ten eggs, laid singly on the foodplant. They were yellowish, slightly over 1mm in diameter and with longitudinal ribs. By the following day a further 19 eggs had been laid and I decided to let the butterfly fly loose inside a small greenhouse with an abundance of potted foodplant. Egg-laying continued until 1st October after which the female died and was placed in my collection. A total of 150 eggs were laid.

The egg stage is rather short as the first larvae appeared on 20th September. After eating their egg shells, the green black-headed larvae started feeding on the tender shoots of *A. curassavica*. They fed voraciously and grew very rapidly. The majority have three pairs of long tentacles but some had even four pairs.

Pupation started on the 30th. Pupae are of two colour morphs, either green or pinkish brown and with the characteristic golden girdle on the seventh abdominal segment.

Hatching commenced on 6th October. On that day 11 butterflies emerged, five males and six females. By the 23rd, a total of 140 adult specimens were obtained. A few of the eggs failed to hatch and two pupae failed to emerge.

I decided to keep a few pairs in an attempt to obtain a second brood, although by now the foodplant supply had dwindled considerably. Some pairs were "sleeved" together with *Periploca laevigata* (Asclepiadaceae), and with *Nerium oleander* (Apocynaceae). Only a single egg was laid on the oleander and although it hatched, the larva did not feed and died. No mating was observed by 16th October, but a female started laying on *A. curassavica* and *Gomphocarpus fruticosus*. I confirmed that the ova were fertile when I observed some pairings on the 17th. From eggs hatched on 20th October, I successfully reared the larvae and the adults commenced to emerge on 14th November. Hatching continued until the first week of December.

Again a number of pairs were kept alive in order to attempt a third brood. By now the weather had changed: it was cold and wet and it appeared that the butterflies had entered hibernation. In the second week of January 1992, two females died and by the 28th, all of them had perished.

ADDITIONAL RECORDS OF THE PLAIN TIGER (*DANAUS CHRYSIPPUS*), IN MALTA

by Aldo Catania (7680)

Zernio, 135 Pembroke, St Julians, Malta G.C.

Since the first sighting in 1978 of the Plain tiger, *Danaus chrysippus,* in Malta, records of captures and further sightings up until 1985 were kept and published by the late Mr Anthony Valletta (1986). Since then this strong flier has been observed on several occasions. There is a strong possibility that it is breeding here although none of its early stages have been met with in the wild with certainty.

As is well known, the main foodplants for this butterfly are *Asclepias curassavica* and *Gomphocarpus fruticosus,* neither of which grow wild locally, although they may occur as ornamental plants in private or public gardens. What is certain is that Mr Valletta brought from the Canary Islands quite a number of seeds of these two plants which he distributed to many of his friends. The only indigenous species of Asclepiadaceae which is locally common is *Periploca laevigata* (Haslam et al, 1977) which grows on several cliffs and garrigues and which flowers in spring and autumn.

The following is a table showing all records of the Plain tiger from 1987 to 1992. An asterisk (*) indicates that the specimen was netted.

Date	Locality	Time	Sex	Recorder
1.x.87	San Gwann	12.00	—	A. Catania
14.xi.87	St Julian's	12.00	—	A. Catania
7.v.88	Gzira	12.00	—	A. Catania
14.v.88	St Paul's Bay	11.30	male*	A. Catania/A. Valletta
15.v.88	Ghadira Bay	11.00	male*	A. Catania
27.v.88	Gwardamangia	14.20	—	A. Catania
1.xi.88	Gwardamangia	12.00	—	A. Catania
2.xi.88	Manoel Island	10.30	female	A. Catania
5.v.89	Marfa	12.00	male*	A. Catania/R. Croughters
23.v.89	St Paul's Bay	11.50	—	A. Catania
6.vii.90	Buskett	16.00	male*	A. Bruno
16.viii.90	Mtarfa	18.30	—	P.M. Sammut
24.ix.90	Pembroke	11.00	—	A. Catania

Date	Locality	Time	Sex	Recorder
7.x.90	Selmun	12.45	female*	A. Catania/M.Fenech
20.x.90	Hal Far	09.30	female*	A. Catania
26.x.90	Pembroke	10.45	male*	A. Catania
4.xi.90	Pembroke	12.00	—	A. Catania
9.xi.90	Ghemmieri Farm	11.30	3 specimens	N. Farrugia
16.ix.91	Pembroke	13.00	female*	A. Catania
29.ix.91	Ta' Qali	15.00	—	P.M. Sammut
23.x.91	Balluta	12.20	—	A. Catania
23.x.91	Rabat	14.00	—	A. Catania
23.x.91	Buskett	09.00	—	P.M. Sammut
26.xi.91	Qalett Marku	10.30	—	M. Thake
5.xi.91	Qormi	10.30	female*	A. Catania/M. French

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AN INTERESTING PLUME MOTH IN STAFFORDSHIRE

by Jan Koryszko (6089)

A friend, Mr John Shaw, whose grandfather was a well-known Staffordshire entomologist (Edward Shaw), who collected in the early part of this century, and also his father before him who also collected back in the Victorian era, brought me a plume moth which had flown into his house on the evening of 22nd September 1992.

The specimen was taken quite close to Stoke City Football Ground, near where he lives, and he said that he had not come across this species before. Specimens he takes in this area are often passed to me for identification.

I was uncertain about this plume moth, so I passed it on to the micro-lepidoptera expert, Mr R.G. Warren, who informed me that it was *Emmelina monodactyla*. This is one of the species which hibernates as an adult and this may account for it entering the house. Its foodplant is bindweed (Convolvulus) which probably grows on waste ground by the Trent, so this may be the source of the moth.

It has been recorded from Burton, in the early part of this century, and at Dovedale it emerges late and hibernates, but examples of partial summer emergence were taken at light at Madeley, 17th July 1934, by the late H.W. Daltry. In some seasons it is reported as widespread and common, but this is the first time I have encountered this species in the county.

BOOK REVIEW

Suffolk Dragonflies by Howard Mendel, A5, pp159, numerous colour illustrations and maps. Suffolk Naturalists' Society 1992. ISBN 0-9508154-5-4. Obtainable from The Museum, High Street, Ipswich IP1 3QH. Price £12.00.

A companion book in the same format as the author's earlier work on the butterflies of Suffolk, this book is produced to the same high standard and the coloured illustrations are superb. No set specimens here but all taken in the wild, with the result that they are shown in their true original coloration. One really has to admire the patience and expertise of the various photographers concerned (the author in particular) for obtaining so many unusual shots of dragonflies.

This book is the result of intensive dragonfly surveying over several years by a keen band of entomologists. Just over half the British species have now been recorded as actually breeding in the county, although of course there is the occasional migrant. As is pointed out in a foreword, (by Dr N.W. Moore), Suffolk dragonflies have suffered badly from pollution, drainage, lower water tables and the cessation of traditional peat digging which has resulted in a loss of acid water (does Suffolk perhaps not suffer from acid rain?).

The book opens with an account of life-history and behaviour, then an account of various habitats, illustrated with coloured shots of a number of them. The history of Suffolk dragonflies is discussed and an account of the present survey given. The bulk of the text of course is given over to discussing the actual species to be found and in addition to one or more coloured illustrations of each of them a distribution map is given. These are very clear, occupying at least half, sometimes more, of a page and show the very many rivers to be found in the county. A smaller map gives the distribution in the rest of East Anglia. Under each species there is a clear and concise description both of it and its distinguishing feature, differences from similar species, where, when and how it is most likely to be found and its occurrence in neighbouring counties, particularly Norfolk. Each account has clearly been very thoroughly researched and every aspect from earliest record to latest is discussed, often with quotations from earlier literature, which makes at times for some fascinating reading as the reliability and confusion that has arisen in the past is reported and assessed. In the case of *Ischnura pumilio*, for instance, the discussion fully discloses how it came to be mistakenly included as a Suffolk insect.

The book concludes with some useful addresses (Congratulations: that for the AES is actually correct for a change!), a list of books for further reading and for identifying dragonflies and their naiads, a list of all the many references quoted in the text and an index to the species. Although dealing only with Suffolk, species wrongly reported, suspected or known only as migrants are included, so there is a fairly extensive coverage of the British species as a whole. In view of the superb illustrations and extremely authorative and well-written text, this book is a must for every odonatologist; to others, well worth buying, when it could generate an interest in these aerial/aquatic creatures, or for no other reason than to enjoy the illustrations. Brian Gardiner

SOME NOTES OF LEPIDOPTERA IN STAFFORDSHIRE DURING 1992

by Jan Koryszko (6089)

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During the summer of 1992 the Cinnabar, *Tyria jacobaeae,* was very common. Large numbers recorded from Barlaston Rough Close Common where I have never seen it so common. Common also at Weston Sprink, and quite a few at Burnt Wood; abundant on ragwort at Fenton with many hundreds of both larvae and moths; larvae close to Longton-Fenton railway line and large numbers of moths found in Fenton warehouses, quite a few having been shown to me. Once more the Holly blue, *Celastrina argiolus,* was very common in both broods.

In the past the second brood rarely occurred in Staffordshire and was only recorded in 1944, 1947, 1948, 1971 and 1976. I have seen it in many gardens including my own in Meir, on Dogwood and Snowberry; also recorded at Trentham by R.G. Warren. I saw a single example at Whixall Moss, Shropshire on 16th July. The Large and Small whites, *Pieris brassicae* and *rapae,* were also very common, no doubt reinforced by migrants. The less common species recorded in 1992 were Small heath, *Coenonympha pamphilus*; Large yellow underwing, *Noctua pronuba,* which was less common than usual; Small pearl-bordered fritillary, *Boloria selene,* not seen at Burnt Wood for two years now. It is feared it may now be extinct there.

The most interesting finds of the year were a Silver-washed fritillary, *Argynnis paphia,* in the garden of R.H. Heath, at Meir, where it stayed for only a few minutes, and a White admiral, *Ladoga camilla,* at Kinver Edge, the first Staffordshire record, R.G. Warren tells me.

AN EARLY SPECKLED WOOD

by A. Archer-Lock

ON 13th March this year Mr S.A. Langsford of Tavistock, Devon, watched a Speckled wood (*Pararge aegeria*) flying around his garden.

EARLY BUTTERFLIES (AND ORCHIDS) FROM CRETE, APRIL 1992

by R.W. Bogue (9056)

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Crete is probably best known to naturalists for its flora, in particular, the sixty-eight or so species and major subspecies of orchid found on the island. Attempting to find and photograph these was, in addition to soaking up the early Mediterranean sun, my main reason for returning to the coastal town of Agios Mikolaos early in April 1992. However, anyone visiting Crete cannot help noticing the abundance of butterflies, both familiar and exotic, even in March or early April, so on this visit I decided to attempt some identifications and took a copy of Paul Whalley's excellent pocket-sized guide to European butterflies. This seemed to be the best choice for a non-specialist such as myself but also reflected my lack of success in tracking down any work devoted specifically to the Rhopalocera of Crete or even the broader Aegean region. (Does any member know of such a publication?)

Our arrival at the northern town of Heraklion was heralded by a strong, hot wind, bringing with it the red dust swept from the Libyan desert, three hundred miles to the south. The rain that followed was little improvement but even in dull, damp and windy conditions Speckled woods (*Pararge aegeria*) were flying in the hotel grounds. These were not instantly recognisable, being the orange-brown typical form (*P. aegeria aegeria*), not the more familiar dark brown form (*P. aegeria tircis*) that occurs in Britain.

The following morning was bright, still and dry and as if to herald the arrival of better weather, a Scarce swallowtail (*Iphiclides podalirius*) flew lazily past our chalet in the early morning sun and settled within camera range. These were seen on several occasions and are quite easy to photograph, allowing a close, if necessarily stealthy, approach. Further exploration of the grounds revealed no further butterflies but six species of orchid in bloom, including the Late spider orchid (*Ophrys fuciflora*), familiar to British natralists and thriving here at the southerly extreme of its range (Kent is its most northerly station).

Exploring the rough *garigue* around the hotel, I located a dozen or so orchid species, including the Sawfly orchid (*Ophrys tenthrendifera*), whose humble name belies its beauty; probably the most attractive and exotic-looking of the large *Ophrys* genus, which includes our native Bee, Lesser and Greater spider, and Fly orchids. Here, butterflies were numerous and familiar species included the Red admiral (*Vanessa atalanta*), Painted lady (*Cynthia cardui*), Swallowtail (*Papilio machaon*), Wall (*Lasiommata megera*) and Clouded yellow (*Colias croceus*), all flying rapidly over the hot, grey limestone. On the wing, females of the last species can be confused easily with the Greek clouded yellow (*C. libanotica*) although this doesn't take to the wing until far later in the year; a simple means of distinguishing the two species in the spring.

Whilst the rough *garigue* is good orchid hunting territory, the coastal olive groves, interspersed as they are with small, flower-filled meadows, are ideal butterfly country. Most of the aforementioned species were abundant as were the "blues" and "whites". Without a net, however, these are exceedingly difficult to identify but of the former, I suspect that the African grass blue (*Zizeeria knysna*), Common blue (*Polyommatus icarus*) and possibly the Black-eyed blue (*Glaucopsyche melanops*) were all present, together with several others. As for the "whites", one can only guess. A frequent visitor to the wild irises, poppies, anemones and bizarre Serapias orchids that fill these coastal meadows, was the Southern festoon (*Zerynthia polyxena*), a brightly-coloured species that is readily recognised.

Anyone visiting northern Crete should drive along the coast road from Agios Nikolaos towards Sitia as this includes some of the most rugged scenery on the island and afforded quite spectacular views across the bay of Mirabello. Stopping our hired four-wheel drive vehicle (vital for exploring the island, as all but the main coastal roads are un-metalled), at a likely-looking orchid site, I was delighted to find a small colony of the Anatolian orchid (*Orchis anatolica*) in bloom, a "first" for me, together with Cretan bee orchids (*Ophrys cretica*), (not an endemic as sometimes supposed) and several other *Ophrys* species. Here I saw my first and only Cleopatra (*Gonepterix cleopatra*), a butterfly whose female is virtually indistinguishable from our native Brimstone. Fortunately, this was a male and thus readily identified by the bright orange splashes on the forewings.

Crete in early April was, as always, a most enjoyable and welcome break from the seemingly-interminable wet Devon winter. I located and photographed around twenty orchid species in the week, many up in the mountainous regions of the island where, at that time of year, butterflies were few and far between. The island is a mecca for botanists, archaeologists and ornithologists (our progress was once halted by a pelican that only moved from the middle of the road with great reluctance!), but I suspect that anyone planning a visit for purely entomological reasons should go later in the year. Despite the aforementioned butterflies and a few others that I failed to identify, only a single moth, a Hummingbird hawk (*Macroglossum stellatarum*) was seen, despite many outside lights around our hotel. However, there are certainly some rare species for the enthusiast to track down, for instance, the Cretan argus (*Kretania psylorita*) which is, I believe, endemic.

Finally, I should be pleased to share my orchid hunting experiences with any AES members planning to visit Crete.

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ABUNDANCE OF LESSER CREAM WAVE AND YELLOW-TAIL MOTH IN SHROPSHIRE

by Jan Koryszko (6089)

On 2nd July 1992, R.H. Heath, D. Heath, T. Mellor and myself visited Whixhall Moss, where a number of species were recorded and photographs taken. Amongst those seen were the following notable ones: Scalloped hook-tip, *Falcaria lacertinaria*; Forester, *Adscita statices*; Birch mocha, *Cyclophora albipunctata*; Small scallop, *Idaea emarginata*. A few Eggars were also seen dashing across the heather, but whether they were Oak or Northern Eggars (if indeed they are different species), we could not tell. A Drinker, *Euthrix potatoria* pupa was found by R.H. Heath; it hatched a few days later. I myself recorded a Narrow-winged pug, *Eupithecia nanata angusta,* ab. *oliveri* on heather; the Purple-bordered gold, *Idaea muricata*; one Dark green fritillary, *Argynnis aglaja aglaja,* on a patch of flowers and of course the Large heath, *Coenonympha tullia davus*. The most abundant moth, however, was the Lesser cream wave, *Scopula immutata,* of which large numbers were disturbed and beaten out of bushes. This was the case in 1990 when S. Cooper visited the area. (See *Butterflies and Moths of Shropshire* by A.M. Riley.)

On 16th July 1992 we visited Fenns Moss, hoping to see the Manchester Treble-bar, *Carsia sororiata anglica,* which we did not see at Whixhall Moss, but again we had no luck after beating for it. The most abundant moth here was the Yellow-tail, *Euproctis similis,* of which large numbers were beaten out. I have never seen so many! One Beautiful snout, *Hypena crassalis,* was also recorded.

PEACOCK TURNS CARNIVORE

by Stuart Pittman

On a recent field trip this spring I observed a male Peacock (*Inachis io*) feeding on the rotting flesh of a shotgunned rabbit. It is well documented that certain members of the Nymphalids have this penchant; I have not, however, come across similar behaviour for *io* and wonder if any other members have?

SOME OBSERVATIONS ON CORNISH LEPIDOPTERA

by Ian Mascall (6056)

18 Alberta House, Highfield Road, Middlesbrough, Cleveland TS4 2NP.

My family had decided to take a holiday this year and, since I have always wanted to go back to such a lovely place, which we had visited on many occasions before, we again chose St Agnes on the beautiful north coast of Cornwall. I was last there back in 1982 and my entomological activities were on the up. I collected many a specimen but usually just two pairs with undersides. Now I just either watch, record or photograph the local insect life, but my collecting days did come back in my mind. But with my net and equipment back home in Middlesbrough, I had to do without!

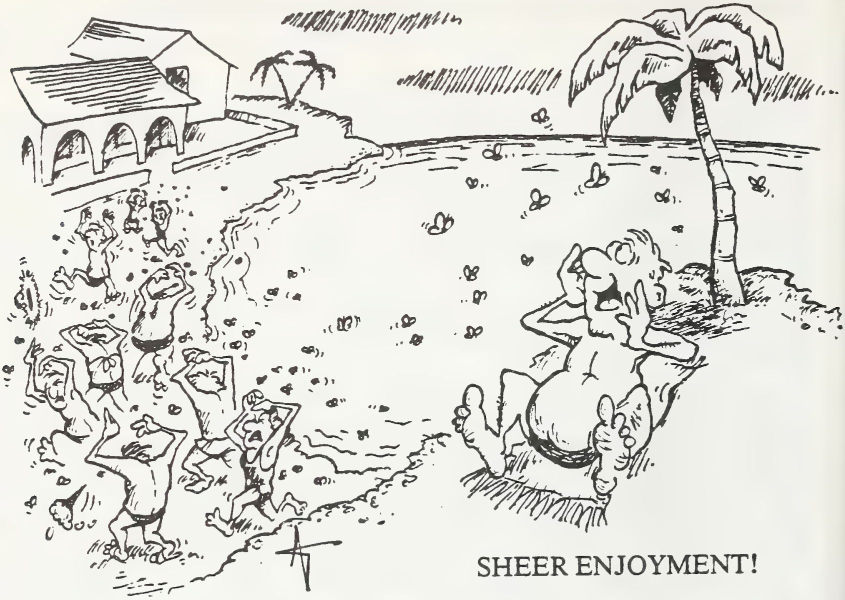
The journey down was a long one. Fourteen hours due to the usual traffic jams, one of which was 54 miles long! Luckily my dad and I had an overnight break in Weston-Super-Mare then travelled on next day. I noticed on the A30, during our frequent stops for long periods, that the butterfly populations were very numerous. During my two week stay in St Agnes I had the fortune to encounter seventeen species.

St. Agnes has a combination of sea cliffs, moorland, gorse, heather, lots of hilly districts with buddleia bushes everywhere, plus willowherb and other plants for insect life. By far the most numerous species was the Holly blue. They were everywhere. It was good to see them in such numbers. I even had the opportunity to observe a courting pair on a basil bush for a good ten minutes, just feet from my chalet.

One great surprise, for it was the first I had ever seen, was a Clouded yellow. It flew past me while I was at my beach chalet. It stayed long enough for me to recognise and identify it. It brought a shiver of excitement to me! After fifteen years of entomology at last I have seen a rarity! I even had a couple of drinks later to celebrate!

One strange activity happened as I came out of the sea. From a spot of surfing I noticed my family looking to their right in total amazement. When I got back to the beach I knew why. There must have been over 40 male Oak eggars (*Lasiocampa quercus*) on the chalet balcony flying around in a frenzy much to the annoyance of non-entomological persons. I loved it! So did my family, who share my fondness of such creatures. I'm sure somewhere there must have been a "calling" female but I never found her. This was at 3.30pm on a hot day. I knew Oak eggars did "assemble" but that memory will last in my mind for years to come. Sheer enjoyment!

My youngest niece came up to me in a hurried way the second week we were there saying she'd found a "huge" caterpillar walking across the



SHEER ENJOYMENT!

road and presented me with a fully-grown Elephant hawkmoth (*Deilephila elpenor*) larva. I examined it and it looked off-colour, so I knew it was ready to "go down". I found a patch of rhubarb and placed the larva on the stem face down. I never saw it again so I guessed it had pupated. I hope the moth did emerge either in September or the following year.

As you can see I had one hell of a time in St Agnes. With any luck I will go back again in the years to come. It is an entomologist's dream. Finally, while writing this article on 14th August, I saw a female Holly blue here in Middlesbrough — the weather being warm and sunny. I didn't think they lived this far north.

The butterflies I recorded were:

Clouded yellow	*Colias croceus*	Meadow brown	*Maniola jurtina*
Comma	*Polygonia c-album*	Painted lady	*Cynthia cardui*
Common blue	*Polyommatus icarus*	Red admiral	*Vanessa atalanta*
Dark green fritillary	*Argynnis aglaja*	Silver-washed fritillary	*Argynnis paphia*
Gatekeeper	*Pyronia tithonus*	Small skipper	*Thymelicus sylvestris*
Grayling	*Hipparchia semele*	Small tortoiseshell	*Aglais urticae*
Green-veined white	*Pieris napi*	Small white	*Pieris rapae*
Holly blue	*Celastrina argiolus*	Speckled wood	*Pararge aegeria*
Large white	*Pieris brassicae*		

PURPLE HAIRSTREAK RECORDS FROM STAFFORDSHIRE

by Jan Koryszko (6089)

On 24th July 1992, T. Mellor, D. Heath and myself visited Burnt Wood, Staffordshire where we recorded such species as Speckled woods (*Pararge aegeria*), Gatekeepers (*Pyronia tithonus*) and Commas (*Polygonia c-album*).

We went further into the wood, visiting a part (which bordered onto the adjacent Bishops Wood) we had not been to for some years but were quite disappointed after beating for an hour with little to show for it, a similar experience to other areas we had visited that week.

However, we were finally rewarded when we disturbed a Purple hairstreak (*Quercusia quercus*), which settled on a leaf, and was netted; a perfect female, but she then escaped the net as we all got quite excited to have a look at her. This species was not seen at Burnt Wood from 1955 to 1975, but now occurs each year in small numbers.

In the early part of this century it was plentiful at Swynnerton, where it is now extinct after the oaks were felled. It is still recorded at Chillington and other places in the south-west of the county. Often reported around ash trees as well as oaks in these areas, there are also records from Aqualate in the past. See *Atlas of the Lepidoptera of Staffordshire* by R.G. Warren, Part 1, 2nd Edition.

A QUICK WALK-ABOUT ON THE ISLE OF SKYE 1991

by Dominic Rey (7972)

22 Southfield Road, Tuffley, Gloucestershire GL4 9UD.

A friend of my mother had been living on Skye for a few years but like a lot of British these days, decided to emigrate to Australia. Before she left, my mother decided to drive up to see her. What did I do? Jumped in the back seat with my net and specimen boxes and endured sitting up during the 12-hour journey. I came in useful once or twice as a "back seat driver"!

The purpose of my trip was to compare notes, tread new ground and pick out a few odds and ends for the collection. During the two day visit the weather was decent even though up until then it had apparently been dismal, becoming so again on the day of departure.

Here is a list of butterflies and some moths found in the southern part of Skye on 23rd and 24th June, mainly near Broadford and Elgol.

Small heath (*Coenonympha pamphilus*): Fairly abundant, specimens having the underside of the hindwings very grey without the chestnut tinge as in some southern specimens. A particular variety, of which I found a pair, was a form with the hindwing underside totally uniform grey without the white patch.

Large heath (*Coenonympha tullia*): Only a few males at Broadford on a damp hillside. They were flying over the grass, heather and bogs. Though easy to net, the butterflies can be elusive and swift. When captured they were found to be of the Scotch form, classed as ssp. *scotica* by most, but classed as form *scotica* by myself. Though they were weakly spotted, only one was totally spotless.

Small pearl-bordered fritillary (*Boloria selene*): One only at Elgol but not uncommon in a "closely knit" colony in a small ravine on the hillside at Broadford. I have read that this species is paler upon Skye, as in other parts of Scotland, but this was not so at this colony, as they were identical to the many I see in my own area in Gloucestershire.

Common blue (*Polyommatus icarus*): Only one male at Elgol.

Green-veined white (*Pieris napi*): Just the one seen, a brownish-grey coloured female.

Northern eggar (*Lasiocampa quercus callunae*): Males could constantly be seen, especially at Elgol, thrusting themselves through the air in the midday sun over the rocks and heather. They were identical to ones I see in Shropshire so I left them to it.

White ermine (*Spilosoma lubricipeda*): Commonly at the window during heavy rain at night, all specimens more or less buffish coloured.

Also recorded were the following: Broom moth (*Ceramica pisi*); Pretty pinion (*Perizoma blandiata*); Grey-scalloped bar (*Dyscia fagaria*); Smoky wave (*Scopula ternata*). The Small purple-barred (*Phytometra viridaria*) wasn't uncommon and the same as Cotswold moths. I took a nice male, however, with outstanding crimson bands.

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Yet still our arrows and our slings
Stab collectors in the head.

Immune, supreme, divine, the light
The power and the glory,
He knows what's best. For sure he'll write
This planet's final story.

* * *

Ah . . . . MEN!!

Brian Wurzell (3718)

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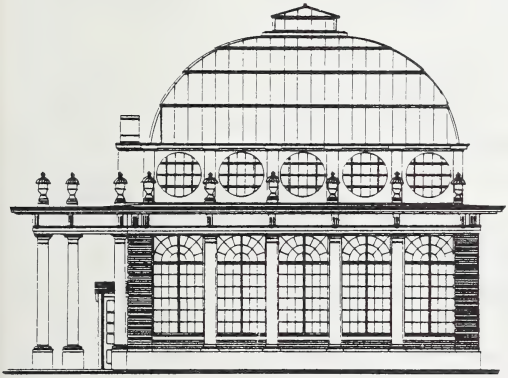

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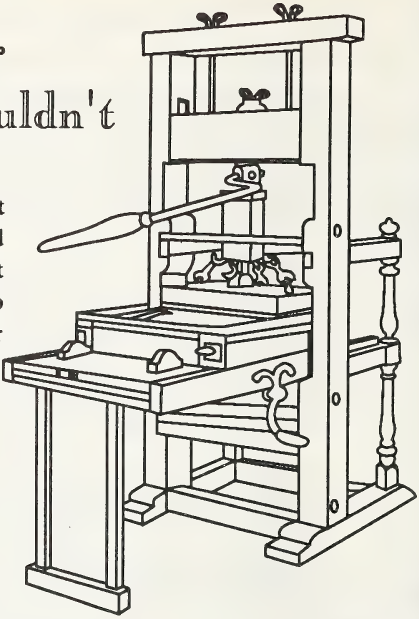

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J.C.C.B.I. Representative & Editor of Insect Conservation News:	D. LONSDALE, 54 Cherry Way, Alton, Hants GU34 2AX.
Habitat Conservation Officer:	Dr. C. BETTS, 'Roseland', Poltimore, Nr Exeter, Devon EX4 0AT.
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Youth Secretary:	DARREN MANN, 129 Clifford Bridge Road, Coventry, W. Midlands CV3 2DX.

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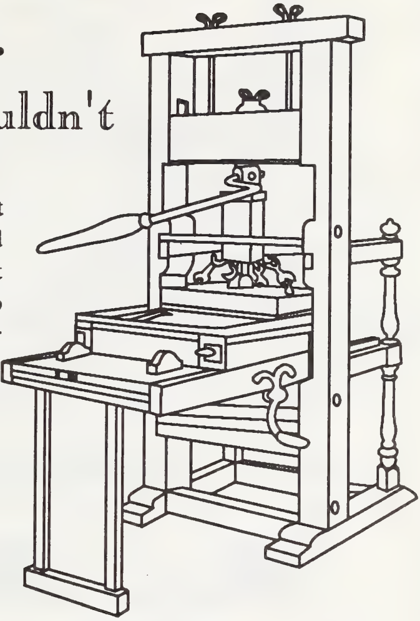

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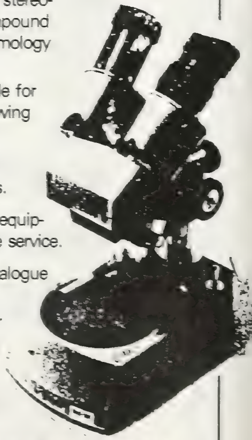

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AES BULLETIN

No. 389

THE AMATEUR ENTOMOLOGISTS' SOCIETY

ANNUAL REPORTS FOR 1992
OF THE SOCIETY AND ITS ASSOCIATED BODIES

OF THE COUNCIL

Membership of the Society as at 31st December 1992 was 1920 members; this comprised 9 Honorary, 57 Life, 10 Exchange, 97 Junior and 1757 Ordinary and Associate members.

The Council met on four occasions during the year at the Central Hall, Westminster. The Annual General Meeting was held at the rooms of the Royal Entomological Society on the 25th April, and C. Plant gave a well-illustrated lecture entitled "The larger moths of the London area". At that same meeting a Special General Meeting was held to amend certain minor parts of the constitution.

The Annual Exhibition held at Kempton Park Racecourse was again very successful and R. McCormick is thanked for all the hard work he does towards organising this event.

Council reports with regret the death of several members notified to them during the year, including Rev. C.T. Youll (4510), J.C.S. Marsh (8874), A.H.W. Smith (6139) and C. Garrett-Jones (989).

Lastly, Council welcomes Katie Taylor to the post of Registrar and would like to thank her for all her hard work during the year.

M.J.R. Jordan, *Hon. Secretary*

OF THE TREASURER

As predicted in my last report, the Society's financial results for the year ending 31st December 1992 show a considerable deterioration due to the continuing impact of inflation and a reduced investment income. General Fund expenditure increased by £3,474 to £23,469 whilst income only increased by £1,411 to £21,153 (of which only £290 was an increase in actual income, the remainder resulting from an increase in subsidy from the Hammond Fund to cover the cost of colour plates in the *Bulletin*). The consequent deficit of £2,316 was also written off to the Hammond and Crow Trust Fund to avoid depleting the General Fund. An increase in subscriptions for 1994 will therefore be required to maintain the Society's finances in a stable condition. Despite this the subscription rates for Ordinary members will be below the cost of *Bulletins* supplied and will remain among the best value for money, if not the best, when compared with other Societies of a similar size.

On the publications front the Society had another excellent year with the sale of over 2,300 books, leaflets and pamphlets. The gross value of books sold (at retail prices) was £13,920 and the trading surplus increased slightly from £2,847 to £2,989. Sales of the Society's *Habitat Conservation Handbook* continued at a very satisfactory level and the first edition will be sold out before the end of 1993.

R.A. Fry
Hon. Treasurer

OF THE YOUTH SECRETARY

In 1992 the AES held its first junior field trip abroad. Ten members spent two weeks collecting insects around France without any major problems. This trip would not have been possible without the organisational skills of Mrs Marianne Battersby, and I take this opportunity to thank her for all her efforts. A write-up of the trip will be published in the *Bulletin*.

The Junior Section appeared in the June and October *Bulletins*. Unfortunately the input of articles from members is still small and so the onus on producing articles has been left mainly to me. So come on juniors, you've got this space, so use it.

Although the AES junior membership is comparatively small, it is hoped we can improve this. Present members can help by informing interested friends and local schools and colleges of our existence. Posters and prospectuses for the Society can be obtained by writing to the Registrar, enclosing a stamped addressed envelope. We will do our part by using target advertising in related Societies' journals, libraries and museums and increasing the services available to our members.

Any members with ideas for increasing our junior membership, or what we should be doing for our junior members are invited to write to the Honorary Youth Secretary.

Darren Mann
Hon. Youth Secretary

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER 1992

1991 £		1992 £	1992 £
	***Bulletin* Costs:**		
268	Editorial	433	
12108	Printing	12108	
4877	Despatch	5220	
205	Indices	133	
			17894
	Membership Services:		
405	Membership List	1057	
66	Wants & Exchange Lists	309	1366
	Administration etc:		
681	Stationery & Notices	605	
343	Postage & Carriage	252	
1200	Registrar's Fees	1325	
897	Meetings Expenses	691	
547	Depreciation	437	
378	Insurance	415	
184	Sundry Expenses	342	4067
183	Conservation:		142
19995			23469
—	Surplus Income to General Fund:		—
19995			23469

1991 £		1992 £	1992 £
	Subscriptions:		
10785	Ordinary & Affiliate	11050	
380	Junior	384	
318	Life Membership Fund	344	11778
1147	**Donations:**		1523
518	Enrolment Fees:		487
	Investment Income (Gross):		
2976	National Savings and Midland Bank Accounts		2462
	Other Income (Net):		
1770	Advertising Revenue	2208	
942	Annual Exhibition	660	
55	Badges	63	2931
851	**Hammond Fund subsidy for *Bulletin* colour plates:**		1972
19742			21153
253	Deficit to General Fund:		
	Deficit to Hammond/Crow Fund	2316	
19995			23469

PUBLICATIONS TRADING ACCOUNT FOR THE YEAR ENDED 31st DECEMBER 1992

EXPENDITURE

1991 £		1992 £
	New and Revised Publications Costs:	
256	Editorial etc.	125
21495	Printing	5137
—	Decrease in value of stocks:	101
6790	Selling and other expenses:	5568
2847	Trading Surplus to Publications Fund:	2989
31388		13920

INCOME

1991 £		1992 £
16976	**Sales (Gross)**	13920
10223	Increase in value of stocks:	—
4189	Subsidy from Crow Fund to Conservation Handbook:	—
31388		13920

R.A. Fry, Dip.E.E., C.Eng., M.I.E.E.
Hon. Treasurer.

The Report of the Auditors to the Members of the Amateur Entomologists' Society

We have examined the records of the Amateur Entomologists' Society and, in our opinion, the Balance Sheet gives a true and fair view of the state of affairs on 31st December 1992 and of the Income and Expenditure for the year ended on that date.

A.J. PICKLES, F.C.A.

AMATEUR ENTOMOLOGISTS' SOCIETY
BALANCE SHEET AS AT 31st DECEMBER 1992

1991 £		1992 £	£
	General Fund:		
28520	Balance at 1st January 1992	28267	
(253)	*Add:* Surplus income (deficit) for year	—	
28267			28267
6514	Life Membership Fund:		6905
325	Ansorge Award Fund:		347
81623	Crow & Hammond Trust Fund:		83423
	Creditors:		
4187	Advance Subscriptions	4026	
561	Advance Donations	591	
150	Other	394	5011
121636			123953

1991 £		1992 £	£
	Fixed Assets:		
4213	Office Equipment at cost	4213	
2028	*Less:* Total depreciation	2464	
2185			1749
	Investments at cost:		
660	£712 Treas. 12¾% 1995	660	
1260	£1470 Treas. 9½% 1999	1260	
150	109 M&G Charifund Income Units	150	
112575	NSB and Midland Bank Investment accounts	117182	
			119252
	Current Assets:		
254	Stocks at cost	198	
540	Sundry debtors	1121	
3962	Cash at Bank Current Account	1583	
50	Cash in Hand	50	
			2952
121636			123953

PUBLICATIONS FUND AT 31st DECEMBER 1992

1991 £		1992 £	£
46236	**Balance at 1st January 1991**	51125	
2847	*Add:* Trading Surplus for the year	2990	
2042	Interest — NSB and Midland Savings Accounts	1512	
51125			55627
6790	Creditors:		6068
57915			61695

1991 £		1992 £	£
	Investments:		
13612	NSB and Midland Bank Investment accounts		20536
	Current Assets:		
26292	Stocks at lower of cost or valuation	26191	
16764	Sundry Debtors	13545	
1247	Cash at Bank	1423	
			41159
57915			61695

ADVISORY PANEL — CORRECTION TO

Correction to entry re Isopoda (*Bulletin,* January 1993 issue, page 2) should read *Terrestrial* Isopoda and Amphipoda (Woodlice, Talitridae, etc.) Dr L.H.R. Hamblin, 16 Shaftesbury Road, Romford, Essex RM21 2QH

CORRECTIONS TO APRIL ISSUE

Your editor regrets that some errors slipped by in the April issue. Will members please correct their copies as follows:—

On page 74, the article by Brian Mitchell, 2nd line 2nd paragraph for ...11th July (BRM)... read ...11th June (BRM)...

On Colour plate R Fig. 3 for Normal female... read Normal male...

THE JUNIOR ESSAY COMPETITION

This was held in conjunction with the Field Trip to France (an account of which, with colour plates, will appear in the October issue). Two classes — under 14 and 14-18 — were allocated and the entries were sufficiently close for it to be decided to award joint winners for both. The joint winning entries for the 14-18 group were Jenni Johnstone, 16 and a half, and Guy Knight, 16 years, four months. For the under 14s, Joe Parker, 13, and Matthew Hogg, 13 years and 10 months. Their essays are published below.

ADAPTING TO ENVIRONMENTAL CHANGE

by Jenni Johnstone (9214J)

The Peppered moth (*Biston betularia*) is a perfect example of an insect which has adapted to survive in a changing environment. Pollution, such as that caused by the industrial revolution would normally decrease a population or wipe it out altogether. This particular species of moth, however, has evolved to survive despite a change in its surroundings.

Normally, the moth can be described as pale brown in colour, speckled or "peppered" with darker markings. Another form, in contrast, is completely dark being almost black in appearance. Two such forms within a single species is known as polymorphism.

The result of the existence of two different forms can be explained in terms of the moth's genes. The two forms differ only by one allele of the gene responsible for controlling the formation of dark pigment. Occasionally, as a result of gene mutation, a rare, dark form of the moth occurs but, prior to the industrial revolution, few survived.

This is because this night-flying moth rests on the bark of lichen-covered trees during the day and so dark forms were easily seen by its predators. However, the pale form was well camouflaged against the bark and so was able to survive and breed. This situation was reversed due to the industrial revolution. Toxic gasses in the atmosphere killed the lichens and darkened the tree bark with soot. Against this dark background the pale form was extremely conspicuous and more likely to be seen by predators whereas the dark melanic form blended well and therefore had a greater chance of survival.

Evidence from various surveys done over the years supports the theory previously explained. The distribution of the pale form was greater before the industrial revolution and still existed then in rural areas. A survey completed in the 1950s concluded that the dark-coloured moth was more abundant in South-east England and the west of Scotland; areas suffering from heavy industrial air pollution. Nowadays, as a result of pollution control, the pale, speckled peppered moth seems to be becoming the more common of the two forms. Hopefully this will continue and perhaps the "situation which existed before the industrial revolution may return".

ECCENTRICITY IN ENTOMOLOGY

by Guy Knight (8040J)

The Entomologist is often regarded by the general public as, to say the least, "a little eccentric", and in the worst extreme, to quote a particular incident that took place in Edinburgh apparently not so very long ago, the fact that the man concerned collected insects was admitted as evidence of weakness of intellect and was used against him in a dispute over a will in the town's courts.

Although such assumptions are obviously not true it cannot be denied that a certain amount of "harmless" eccentricity is present in most of us, the kind of eccentricity that as Balfour Browne described in his book *Concerning the Habits of Insects* caused two Coleopterists, disappointed at not catching a certain water beetle from a known site and appalled at the idea of accepting a specimen from another collector finally agreed to take two live specimens from the author, release them themselves into a pond (not necessarily the pond they were originally taken from) and net them themselves making it possible to put their own names to the specimens — and maybe tick them off a list with a clear conscience! This eccentric behaviour can be seen to one degree or another in most entomologists and can manifest itself in a shed full of cockroaches or cause a group to travel to the remote regions of a country in search of black record dots on a map, but be warned, it can also be dangerous; let two young lads loose with a butterfly net and the urge to catch something "different" in a foreign country and the results can prove painful for the leader of the expedition. So, in order to avoid further confusion there follows a key as to which creatures can be safely put into an entomological net and brought back to show your friends (i.e. insects) and those which cannot (i.e. The Adder).

1.	Body separated into three segments, six legs present	Insect, safe to show to friends (generally)
	— Body otherwise	2
2.	Body long and thin (legs absent)	3
	— Body otherwise	Not covered in this key (don't risk it)
3.	Body covered in scales	4

4.	Has it got a "V" on its head? (Contrary to popular belief if this feature is absent the rest of the key should not be ignored)	Beware — the Adder (Not an insect) This can bite if brought back in a net, resulting in great discomfort! (The adder is in fact a venomous snake! *Vipera berus*.)
	— "V" absent from head	If zig-zag present on back then it may still be The Adder (see above).

Despite these minor dangers however, the entomologist is generally harmless enough and probably will continue to pursue his interest for many centuries to come with the same eccentricities as his counterpart from back in the 18th and 19th centuries.

HOW I BECAME AN ENTOMOLOGIST

by Joe Parker (9002J)

Entomology caught me in its net when I was six. It was at the National Museum of Wales in Cardiff when I was looking at the insects I came across a 4½ inch long cicada. It amazed me, the way its wings reflected the light, its large compound eyes, the way the parts of its body fitted together like a piece of machinery and of course, its giant size.

I had never before come across a cicada and, because of its shape — it's half way between a dragonfly and a fly — I decided to find out about it. I looked in my grandmother's insect book and was baffled. All these words like Hemiptera, Homoptera, membrane and tymbal — they mystify you when you are only six.

Gradually I began to understand the long words and orders and families. At that age there was no homework so I had lots of time to go into the garden with my matchbox. I especially liked shield bugs, frog hoppers and violet ground beetles (which I soon found had a nasty bite!)

At the age of seven I had my first exotic (sort of) pet. It was a stick insect which I called Leaf. I kept him in a glass sweet jar and fed him on privet leaves. I loved to try and spot him in the cage and watch him eat up and down the leaves.

Everyone at school was amazed when I brought him in to show them all. The people in my class realised the beauty and importance of insects and instead of going "Yuk!" and stamping on them they either avoided them, brought them to show me or put them out of harm's way. Soon most of the juniors became "Born again amateur entomologists."

The thing that really boosted my interest in insects was a holiday in France. Because it is more southern than Britain there are obviously more insects to find. I really liked the Pyrrhocorid bugs (fire bugs) which I found at the base of trees. All the time I have been an entomologist I have wanted to catch a cicada so when in the countryside I took every chance to go searching. I never found one for the first five years. The time came when, on holiday in Italy, we visited a small village called Monte Olivette Maggiome (I think that's how it's spelt) and the cicadas were everywhere, except within my reach. I had been searching for about two hours in the boiling sun and was going back to have an ice-cream. I had almost given up. Passing through a clump of tall pine trees, I stopped because I heard a male's shrill call. Slowly I turned and laid my butterfly net over it. When a cicada jumps it jumps upwards and backwards so this one went in my net of its own accord. That time I will always remember as my best catch and when I am a professional entomologist, it will be remembered by me as historic.

FIELD TRIP IN FRANCE — LES SABLES D'OLONNE . . .

by Matthew Hogg (9065J)

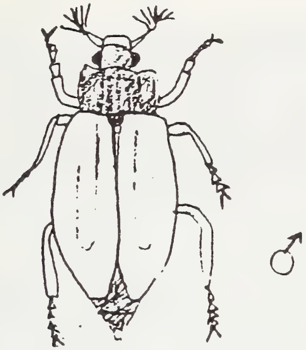
As we got out of the van and set up camp we noticed the area consisted of three main features; the Dunes, Heathland, and a Pine Forest . . . at once we knew this would be most interesting.

That evening Darren Mann, Joe Parker and myself went out setting pit-fall traps, with mackerel as the bait, and as it was by the sea we thought it would be excellent. We dug them into three main areas, (Dunes, Heathland and Pine Forest) and when we came to the Heathland, at the base of a heather we noticed an interesting species of millipede, which was (when we looked closer) *Schizophyllum sabubsum*. We looked for more under other heathers and sure enough we found more. At the end of this little craze, we had, altogether about thirty-five. Our biggest was about an inch and a half long and about quarter of an inch in width.

As we walked on we noticed lots of *Asilus crabroniformis* flying around. (Although quite rare in Britain, round here it was truly very common. I suppose a bit like the cranefly *Tipula maxima* to us.) Also very common, *Scoila hirta,* which are parasites on chafer grubs.

Whilst walking along, a *Melolontha* species flew straight into Joe's stomach which was a most painful experience!

We went off again that evening to have a most interesting surprise . . . this was to find a mantid *(Mantis religiosa)* in my net. A few sweeps later Darren found a species of stick insect in his net, which he could not identify!!



Melolontha melolontha by the author.

A largish black thing flew by me which I followed (I could tell it was a beetle, because it was stridulating loudly). It landed in some dog excrement. I tubed it and whilst I inspected it I noticed it was heavily infested with mites (this is why it is called a lousy watchman). It was a Dor beetle (*Geotrupes stercorarius*).

The next day we (Joe and I) went walkabout. We came to a bit of an overgrown waste site, which was packed with different species of insects. I inspected a small plant that was numerous with small blue flowers, it was then that I noticed a weevil (that was about a centimetre and a half) that was covered in brown pubescent hairs. I suspected that it was some kind of *Lixus* sp. Joe swept a bush cricket (*Ephippiger provincialis*) that was crawling up my back! Also in the dense herbage, were lots of *Argiope brunnichi* spiders, these were mainly females that were about to lay egg sacs.

On the way back we noticed a brown adder (*Vipera berus*), hiding under some heather.

The next day, we somehow found a small pond that was full of edible frogs. That evening we saw a weird behaviour from the Pine chafer (*Polyphylla fullo*). There were about ten of them, all hovering over the top of a pine. This was precisely at dusk. (Not before and not afterwards.)

The beetle I would most like to find is *Lucanus cervus,* the Stag beetle, which is the largest beetle in Europe. The female and male of this species are different both in size and in appearance. The male's size can range from 35-75mm in length (some specimens though, have been measured up to 90mm). The females measure 30-40mm. The reason for such a difference in the sizes of the two sexes is because of the exaggerated male's head and mandibles. The inside surface of the mandibles (reminiscent of deer's antlers) are armed with spikes.

Lucanus cervus inhabits very old oaks in oakwoods. It is most commonly found in low altitudes, but in some cases it can rise to higher areas. The imagines fly in June and July and the females can still be seen in the first half of August. The beetles like most visiting trees with oozing sap. Also at the wood, would be other species of beetle and even various hymenopterous insects. Neither the male nor female of the Stag beetle use their powerful mandibles for the intake of food (but they do lick sap with a long, yellow, hairy tongue). The male's mandibles are used in duels against other males, for the prize of the female. These duels can sometimes be very dramatic, where one of the males can fall onto its back and can be very difficult for it to get the right way up again. The female uses her mandibles for burrowing in the ground before laying her eggs. Although the nip of the male's mandibles is quite appreciable, the female's bite is much sharper. As anyone who has held a female stag beetle will know, she can puncture the skin.

The larva develops in rotting roots of old oak trees and stumps. Sometimes it can be on beeches, elms, various species of willow, ash, and fruit trees. The larva lives and tunnels in the wood for three to five years. Before pupating it leaves the tree and buries itself in the soil about 20mm down. There it forms around itself a capsule about the size of one's fist, makes it smooth and comfortable inside, and then pupates. By looking at the pupa, you will be able to tell whether or not it is a female or male by the mandibles on it. The imago emerges in the autumn but stays underground until June the following year.

Today, *Lucanus cervus* is in danger of disappearing, not because it is caught by man, but because of destruction of the places where the beetles live and where their long development takes place. In some countries the species is protected by law.

The Stag beetle inhabits a large part of Europe, Asia Minor, and the Middle East.

I would like to find this beetle because of two reasons. One — it is so rare and everybody would value it in their collection, and two — it's magnificent mandibles on both male and female.

The beetle that causes damage is *Leptinotarsa decemlineata,* the Colorado beetle, measuring about 10mm in length. It has ten dark stripes running down its yellow elytra.

The Colorado lives mostly in potato fields, but can also be found on tomato, tobacco and deadly nightshade plants. The beetles are found from spring until the late autumn. The female lays her eggs on the underside of the leaves where they have good shelter from the rain and sun. Altogether she lays several hundred eggs, but generally she lays them in groups of twenty to eighty. The egg itself is 1.2mm in length and is at first a milky white colour but soon turn yellow, and in a few days time hatch and a red and black spotted larvae start eating the leaves immediately. Between two and three weeks the larvae are 15mm long and an orange sort of colour. This is then the time for it to retire from its host plant and pupate in the ground. The beetle emerges about two weeks later and stays in the ground for a further week, just to let its teguments harden enough to face the world once more.

The beetle is common in a large part of Europe, but it did not originally come from the European fauna. It was first found in the state of Colorado, USA, in 1824. In the last quarter of this century it was to be found in several places in Germany. Even in these places though wiped out thoroughly its progression in other places could not be stopped. In the First World War and the years after, it was to be found in large parts of France and Germany. The Colorado beetle has tried to be wiped out entirely but the ground beetle predators are most important:- *Carabus avatus, C. cancellatus, C. granulatus* because they prey on the larvae and imagines, keeping the population down. Today the Colorado beetle is found over the whole globe. [But has been successfully kept out of UK — Editor].

A CASE OF NECROPHILY IN THE YELLOW-TAIL MOTH

buy Jan Koryszko (6089)

On a visit to Whixall Moss on 2nd July 1992, R.H. Heath, D. Heath, T. Mellor and myself were on our way off the Moss to the car, when we ran into an adder (*Vipera berus*). I noticed its head raised after my friends had passed over it and I stopped in my tracks fearing it was going to strike me. I shouted to my friends who had not noticed the snake. Within seconds our cameras were out! I managed to get a good photograph of it and Tony Mellor got about 20 seconds on his camcorder before it skipped away. After that I kept my eyes on the ground in case we ran into any more adders.

Shortly afterwards, I noticed on the ground a dead Yellow-tail moth, *Euproctis similis,* a female with a wing missing, no doubt attacked by something, and to my surprise a male trying to mate with her, and another close by. How long she had been dead I could not tell, but *rigor mortis* was setting in by her stiffening wings.

Is it possible that the scent or pheromone of the female would persist some time after her death? Mr R.G. Warren tells me that male Eggar moths have been known to be attracted to a bunch of leaves in a box which had been left open and on which a female had been resting, long after the female had been removed. It would be interesting to know how long this pheromone remains active after the death of a female; no doubt the weather conditions play a big part in this.

BOOK REVIEW

The Moths and Butterflies of Northumberland and Durham
Part Two: Microlepidoptera. (*The Vasculum* — supplement No. 3), by T.C. Dunn & J.D. Parrack. The Northern Naturalists' Union, 1992. Pp 378. Price £17.00 post free from Northern Naturalists' Union, c/o The Poplars, Durham Road, Chester-le-Street, Co. Durham.

Lepidopterists in North-east England can now count themselves amongst the most fortunate in the country, for few counties can boast an up-to-date work on both the Macro- and Microlepidoptera. This volume completes the set originated by the same two authors' publication on the butterflies and larger moths (*Vasculum* supplement 2, 1986). Following much the same format as the earlier work, the book comprises a systematic treatment of the history and distribution of all the Microlepidoptera known from vice-counties 66, 67 and 68. (The sense of the Watsonian system is surely revealed by the impending demise of Cleveland, half of which falls wihin V.C. 66.) The species accounts are necessarily brief, covering the salient points of distribution, abundance, historical records, and other points of interest. Particular reference has been made, where appropriate, to Bolam's checklist of 1925 which was the last to cover these counties, and the reference numbers from that work and Robson's earlier catalogue of 1906 are both included alongside the current Bradley & Fletcher numbers. The pages are occasionally leavened by a smattering of Tom Dunns' copious field experience: "All that is needed is to collect a handful of haws from any hawthorn hedge, keep them in a box for a while and moths will emerge" (*Blastodacna hellerella*). Supplementing the text are the maps, and at two per page (rather than four) are a distinct improvement on the last volume, although of course fewer species are mapped. The selection of species mapped largely excludes those for which there are very few or only historical records, although for many species there is still only a smattering of records. Crosses, dots and open circles on the maps represent the various date-classes. Unfortunately there appears to be no explanation in the text as to what are the watershed dates concerned; presumably the same as in the previous volume. Another small criticism would be that there is no reference in each species account as to whether that species has a distribution map — one simply has to flick a page back and forth to find out. However these are but minor complaints about a work which must otherwise stand as a monument to the dedication of the two authors, who have worked for many years in an area relatively untrodden by other microlepidopterists. Surely a work such as this will spur on a few others to unravel some of the many unexplained absences and idiosyncrasies of distribution which are highlighted in these pages.

CJG

MOTHS IN THE RAIN

by Michael E.N. Majerus (4027)

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It is well-known by moth light trappers that catch size is strongly affected by the weather. Warm sultry nights produce the biggest hauls, so cloudy nights are generally better than clear ones. Rain, at least light rain, does not seem to adversely affect the catch. But what of a torrential downpour? Recently, I had occasion to find out.

Having been requested by a colleague in Cambridge to take my traps to Wells-next-the-Sea, to demonstrate moth-trapping to a class of final year zoology students, I assented, but had to insist on a specific date due to other constraints. So it was, that with the assistance of Zoe Sands, and with twenty students in tow, I set up a series of six 100W mercury vapour discharge moth-traps, powered by four EM650 Honda portable generators, on the evening of 20th July 1992, at about 9.00pm. The area we were trapping in was set just behind a dune system, with some traps set on the edge of an area of mature scots pine, others being set amongst deciduous scrub bordering wetter areas with *Phragmites* reeds and other emergent vegetation.

Earlier in the day we had wondered whether to abandon our plans as the weather forecasters had warned of thunderstorms. However, lack of an alternative opportunity, and knowing the hardiness of Cambridge undergraduates, we decided that a little rain was unlikely to hurt anyone. I hardly expected what we got, even as the first flashes of lightning and drops of rain came while we were setting out the traps.

It was not the normal run-of-the-mill thunderstorm. For one thing it did not let up, but was still going strong at midnight when we packed up. The sheet lightning was impressive to say the least. At one stage I counted fourteen flashes within a minute. The storm seemed to just sit over us, for there was rarely more than a couple of seconds between a flash and the ensuing bang. The rain was unrelenting. The following day, the weather-man on the BBC mentioned that, on some parts of the Norfolk coast, 50mm of rain fell during the storm. We were obviously lucky: we only had 39mm in the three hours our traps were out. (How my boots ended up with about six inches of water in them defies logic!) All-in-all it was one hell of a storm.

The amazing thing is that moths were flying in good numbers throughout the evening. I was perhaps not so surprised that some if the larger species, Pine hawks, both sexes of Drinker and female Oak eggars, or the rather robust noctuids, were on the wing, but I did not expect to see geometrids flying. Yet they were, and even during the strongest of the rain. A full listing of the catch is given in Table 1.

The list of results does suggest that some geometrids did stay at home, numbers being a little down on expectation, and none of the pugs or smaller waves were recorded. However, that any of the smaller species were flying, suggests that rain is not a limiting factor for most species. It is perhaps significant that by midnight, the temperature had only dropped to 14.5°C.

The capture of a single Holly blue butterfly (*Celastrina argiolus*) in one of the traps was unexpected. I suspect the butterfly was disturbed into flight by the rain.

Two other points are worth mentioning. Firstly, the Honda generators showed their durability. Despite being uncovered throughout the evening, all four kept running smoothly. Secondly, I must pay tribute to the students who cheerfully stayed out and got soaked with me on what was, meteorologically, the worst night of mothing I have experienced.

Acknowledgements: I wish to thank English Nature for granting Dr William Foster permission to trap on Holkham National Nature Reserve, and Maureen Blake and Joanne Griffiths for typographical services.

Species	Approx. no.
Lasiocampa quercus	13
Malacosoma neustria	>20
Philudoria potatoria	4
Drepana binaria	12
Drepana falcataria	4
Falcaria lacertinaria	>20
Timandra griseata	10-15
Idaea aversata	5
Camptogramma bilineata	3
Eulithis pyraliata	4
Thera obeliscata	5
Hydriomena furcata	2
Abraxas grossulariata	7
Opisthograptis luteolata	6
Lomaspilis marginata	9
Semiothisa liturata	42
Ourapteryx sambucaria	2
Selenia tetralunaria	3
Selenia dentaria	3
Biston betularia	12
Peribatodes rhomboidaria	16
Alcis repandata	3
Bupalus pinaria	5
Phragmatobia fuliginosa	9
Agrotis ripae	>10
Ochropleura plecta	>10
Axylia putris	>10
Noctua pronuba	>10
Noctua janthe	>10
Noctua fimbriata	>10
Lycophotia porphyrea	1
Diarsia mendica	>10
Diarsia rubi	>10
Xestria c-nigrum	8
Xestria triangulum	4
Discestra trifolii	>10
Hada mana	3
Hadena perplexa	2
Mythimna ferrago	>10
Mythimna impura	>10
Mythimna pallens	>10
Acronicta leporina	2
Acronicta aceris	3
Acronicta rumicis	3
Apamea monoglypha	>10
Apamea scolopacina	1
Oligia strigilis	2
Mesapamea secalis	>40
Amphipoea oculea	>40
Caradina morpheus	>10
Hoplodrina alsines	7

Species	Approx. no.	Species	Approx no.
Hoplodrina blanda	>10	*Cabera pusaria*	5
Autographa gamma	>10	*Hyloicus pinastri*	8
Celastrina argiolus	1	*Phalera bucephala*	2
Lymantaria monarcha	>10	*Notodonta dromedarius*	4
Eilema deplana	4	*Eligmodonta ziczac*	1
Eilema lurideola	>30	*Ptilodon capucina*	3
Arctia caja	2	*Euproctus similis*	>20

BOOK REVIEW

Bugs of the World by George C. McGavin. 8vo, pp192, well illustrated in colour and with line drawings. Blandford 1993. ISBN 0 7137 2221 5. Hdbk. Price £16.99

This is the latest offering from the Blandford stable of their "of the World" series, and is of the same quality as the ones on *Butterflies, Bees, Grasshoppers* and *Mantids* (See *Bulletins* **49**:221; **50**:142; **50**:244).

Bugs, Hemiptera, come in all shapes and sizes and range from the useful to the deadly; from the minute to the largest of insects. The superb colour illustrations in this book, mostly by Ken Preston-Mafham, show the incredible range of shapes and colours that these insects exhibit. Mention the word"bug" to the average lay person and the answer is likely to be "Ugh!" the thought being of something nasty. A glance through this book could soon dispel that. The fantastic shapes combined with brilliant colouring of some of the Membracids, Flatids and Fulgorids is quite breath-taking. Equal to the many tropical fish which are now such popular pets.

The scene is set by describing what bugs are and their morphology, followed by an extensive taxonomic description of the numerous families they are divided into, the text of this being neatly interwoven with biological details. A book of this size can but deal with a selection of the many thousand species known. There is an informative chapter on collecting them and equally informative chapters on their diseases, defences, food habits, mating and egg-laying. There is a short chapter on the interaction of bugs and people, a page of further reading references and finally an index.

Although the colourful illustrations in this series from Blandford may give the impression on first sight of being just another "coffee table" type of book, the series is far more than that. All of them are full of useful information on life histories, morphology, ecology, interactions, habits, predators and diseases, whether beneficial or pestiferous. Much of this is new or only previously to be found in scarce out of print books or in erudite journals. My one criticism of this book is that I would have liked it to have included a few details about how to breed some of these fascinating creatures. Many are in fact very easy to rear, particularly those whose food consists of dried seeds or those which can be left to suck happily on a growing potted plant, or even cut stems in water or damp sand. Even some of the blood-suckers are not difficult and have the advantage of only needing a feed every month or so. There are subgroups within the AES (and elsewhere!) who study and publish bulletins and exchange lists on Roaches, Spiders, Beetles, Stick insects and Mantids. Is it perhaps time a Bug group were formed? This book might well serve as the impetus for one. Indeed the author clearly states that the life-histories of the majority of species remain to be described and that there is great scope for the amateur in this field. While many life cycles can be measured in weeks or months, those wishing to rear the seven year cicada should start young! Brian O. C. Gardiner

LIGHT-TRAPPING IN EARLY MAY

by Roger Haywood (2769)

Although the season was very poor in early May this year, as a result of the prevalence of cold clear windy nights, there have been two occasions on which I was fortunate enough to record interesting, if not rewarding, catches.

On the nights of 30th April/1st May, my static trap run in a wooded area near my home at Slough, attracted early specimens of the following poplar-feeding species, but very little else, although the trap was placed near a mature oak tree and the nearby aspen and poplar were at least 100 yards away. The moths were: three Seraphims (*Lobophora halterata*), and one each of Pale prominent (*Pterostoma palpina*), Poplar kitten (*Furcula bifida*). An altogether extraordinary set of records in view of the date and the fact that the weekend produced only five other moths.

A week later, my trap, this time in my garden, attracted a female Muslin moth (*Diaphora mendica*), the only occasion on which this dayflying female has visited my light. Since 30th April the weather at Slough has been very poor for trapping, with no moths at all on some nights, including ten consecutive nights between 7-16th May. I hope others have been more fortunate.

LARGE WHITE LARVAE IN FEBRUARY

by B.C. Farrell (7012)

In regard to recent correspondence regarding overwintering larvae of the Large white (*Pieris brassicae*), on 7th February this year, while picking brussels sprouts, I noticed several nearly full-grown larvae on one of the plants. I sleeved the plant and by early April five larvae pupated. The first adult, a female, emerged on 7th May and was released.

THE PINK COLOUR-VARIETY OF THE LARGE MARSH GRASSHOPPER, *STETHOPHYMA GROSSUM*

by G.B. Collins (1036)

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The photographs of the purple-marked form of the Wart-biter accompanying the note by Sutton and Browne (1992) not only provide useful illustrations of this attractive variety, but also call attention to a point of interest in that one shows an adult male. No comment on the sex of the individuals encountered is given in the note, but reference to the work of Cherrill and Brown (1991) reveals that they also found males of this colour-type and Dr. Cherrill has since stated (pers. comm.) that roughly equal numbers of adults of each sex of the yellow/purple colour form were recorded over the three year period of their study. The absence of any clear bias between the sexes of this bush-cricket as regards the incidence of purple coloration in the adult is in distinct contrast to the situation that appears to exist among our native grasshoppers (Acrididae).

Pink, purple, or purple-marked varieties of grasshoppers have long been recognised; Clark (1943) records these as being found in seven of the eight species for which he lists the British colour forms. Although he makes no allusion to the sex of these, later writers have indicated their more frequent occurrence among females, or indeed, for some species, their apparent restriction to this sex. These comments refer of course to the adult insects. One species for which pink or purple-marked forms of the adult are well known for females, but apparently not for males, is the Large marsh grasshopper (*Stethophyma grossum*). An early British record is that of Lucas (1920) who found just such a female in the New Forest. Others of this colour-type are described by Richards and Waloff (1954), and mentioned and figured by Ragge (1965), Marshall and Haes (1988) and Bellmann (1988), all of whom specifically refer to this form as a female variety. The present note outlines some observations on this species that, although in part inconclusive, seem worth reporting as a contribution towards a fuller understanding of this topic.

Lucas (loc. cit.) writes of the nymphs of *S. grossum,* "they are often almost entirely of a beautiful rosy red colour". In 1980, a last-stage nymphal female answering to this description, and a last-stage normally coloured male nymph found in a typical bog habitat were retained for captive breeding. They were housed in a small fish-tank lined with damp peat overlaid with sphagnum moss and planted with tufts of purple moor grass (*Molinia*). Each moulted within a day of the other, the final coloration of both remaining substantially unchanged in the adult state. Mating took place after a rather short maturation period of six or seven days, and at repeated intervals thereafter. Egg laying was not monitored, but in the following year 48 nymphs hatched. Rearing success was very poor; 11 hatchlings died almost immediately and before their full colours developed. However, in some of the survivors a pink flush gradually became apparent, initially along the mid-dorsal line and then spreading over the dorsal surface so that, at the fourth day, they were noticeably pink above. Within two more days the faces became pink marked, and by the eighth day the pronotal sides and upper surfaces of the hind femora were also pink. At this stage 19 nymphs were pink-marked and 18 normally coloured. They were not sexed until many more had died but, of the pink variety, four males and four females were recorded. Although mortality was high, such nymphs as progressed, both pink and normal, retained their coloration through several moults, one pink male reaching, but not surviving, the last nymphal stage as deeply coloured as the females. One female eventually attained the adult stage in the characteristic pink-marked form as figured by Marshall and Haes, and superficially no different from the female parent.

It is therefore clear that the occurrence of pink coloration in this species is not confined to females in at least the earlier nymphal stages, and the limited evidence available suggests that it may well persist in males throughout the duration of the nymphal state. Furthermore, the fact that the male parent was itself normally coloured as a nymph lends weight to the view that it was indeed a typical normal male, and that the resulting offspring were consequently the product of a mixed mating. If this reasoning is accepted the simplest explanation for the presence of the two distinct colour forms among the offspring is that "pinkness" is under the control of a single gene-pair, and that one parent was homozygous and the other heterozygous with respect to this. Nevertheless, the possibility that a more complex genetic mechanism is involved cannot be dismissed, and further breeding trials calling for other parental combinations would be needed to test this.

Whatever the genetic background may be, crosses of the kind described must occur in the wild, and it might be expected that the resulting offspring would include a proportion of pink individuals comparable with that obtained in captivity. It could also reasonably be assumed that about one-half of the pink nymphs would be males. The question then arises as to why the occurrence of pink adult males has not been recorded. A possible, indeed likely, explanation was obtained recently when, in 1990, a pink last-stage male nymph resembling in appearance that reared to this stage in 1981 was encounterd in the same bog as were the 1980 specimens. The accompanying photograph (Plate AA, Fig.5) shows the extent and intensity of the pink coloration in this wild example, and endorses the enthusiastic description of this form given by Lucas. A pink last-stage nymphal female was taken at the same time, and an opportunity for testing the outcome of a cross between two "pinks" came at last within sight. Unfortunately the female died for some unknown reason shortly after moulting to the adult state, so that this could not be put into effect. The attempt did however provide useful new information in that while the female, like those reared earlier, carried its coloration through into the adult state, the male nymph moulted to give an adult that was indistinguishable in colouring from the normal form.

It seems probable therefore that some of the apparently normal adult males found in the wild would have been pink in the nymphal state, and carry a gene (or genes) for this character even though this is not expressed in the adult. The proportion of such males may indeed be similar to that present among females, but persisting as a distinct colour form in adults of that sex. While the genetic background to this phenomenon still remains to be established these latest observations at least offer an explanation for the lack of sightings of pink adult males and serve to underpin the generally held view that the pink-marked form is, in adults of this species, essentially a female variety.

I am indebted to Dr. A. Cherrill for supplying details of his observations on the adults of the yellow/pink form of the Wart-biter, and to my son, Graham A. Collins, who provided the transparency from which the figure is reproduced.

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Solving the habitat problem?

ANOTHER AUTUMN

Fishes thoughts are turned to dreams
Their fever kept for better days
Locked they are and held in space
Are mesmerised by cooling streams.

Above them by the willow's curve
Flies, anxious, wring their wretched hands
Perceive the sharpening of the wind—
A coming quiet in the land.

Reddening leaves show nature's struggle
As acorns tumble from their cups
Horsechestnuts from their hedgehog shells
Where gnats in final columns juggle.

Their strategy or trick sublime
Spun and hunched between between the leaves
Spiders tuck and fold in nooks
Brimstones find a crack in time
— and disappear.

Don McNamara (5537)

QUEEN HORNET IN SURREY

by Clive Martin (7962)

On the evening of 10th May this year I saw a queen Hornet (*Vespa crabro*) in our garden (Grid ref: 51/363340). She was chewing wood from a clothes post and then flew off in an easterly direction.

STUDIES ON STICK-INSECTS OF THE GENUS *LEPTYNIA* IN SPAIN

by Paul D. Brock (4792)

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A brief trip to Madrid in the summer of 1991 enabled me to make a study of both European representatives of the understudied genus *Leptynia* Pantel. This article covers a wide range of observations, including general notes on habitat, behaviour, foodplants, breeding attempts and a detailed assessment of distribution in Spain.

My book on European Stick-insects (1991) gives concise information on *Leptynia,* whose distribution is as follows:

Leptynia hispanica (Bolivar) — parts of southern France and widely distributed in Spain. In France males are extremely rare and may be gynandromorphs (having male and female characteristics). However, males are plentiful in some Spanish populations, although many populations are parthenogenetic (reproduce by parthenogensis i.e. egg development without fertilization. Eggs almost invariably hatch into females only).

Leptynia attenuata (Pantel) — parts of Portugal and widely distributed in Spain, generally bisexual.

Both species tend to favour dry mountainous regions where broom bushes occur, often at altitudes between 1000-1500 metres.

Collecting specimens — Having arrived in Madrid on 29th June 1991, I set out next day, a hot Sunday, to make an initial, quick exploration of the Guadarrama mountains area, less than an hour's drive north-west of Madrid. I made my first stop at the picnic spot of Mirador de la Pelona, near Los Molinos. Within seconds I had located *L. hispanica* beautifully camouflaged on the broom *Cytisus scoparius* (female — Plate Z. Fig. 3.) A quick search on *C. scoparius* and *C. multiflorus* bushes revealed five females of *L. hispanica* and three *L. attenuata* females (Plate Y. Fig. 2.). Females are very easy to distinguish in the wild, as *L. hispanica* has a pointed anal segment, lacking in *L. attenuata,* which also has much longer cerci than *hispanica.* These insects were on bushes growing at the top of a deep slope leading to agricultural land and with a moutain view in the background (Plate Z. Fig. 4.). Only a few broom bushes were favoured and a walk in either direction of the picnic spot revealed no further insects on frequent broom bushes.

After touring in the Madrid area, I left a further trip to Los Molinos until early morning on 4th July. An extensive one and a half hour search in the same locality revealed seven females of *hispanica,* six females of *attenuata,* four males (Plate Y. Fig.1.), and three large nymphs (two males, one female).

Behaviour — Several specimens, particularly *hispanica* females and *attenuata* males were found crawling or motionless on other plants on the ground, or low down near brooms. It is understandable that museum collections in Europe possess specimens caught by "sweeping" grass. When disturbed both sexes were quite active and tried to crawl away. Occasionally they dropped to the ground and in grassy terrain would, perhaps, be difficult for a predator to locate. The behaviour of these species is quite distinct from that of other European stick-insects, which usually remain motionless. *Leptynia* are fragile looking insects and need to be handled with care, otherwise they will shed legs. I found males with only four legs, and generally the insects collected had more lost limbs than any other European species of stick-insect I have collected. I watched a female *hispanica* moulting on a broom stem at 9.00 am, a rare observation in the wild, and often undertaken during darkness. The whole process was completed in about 15 minutes.

Further collecting attempts - It was time to move onto other possible collecting sites and at nearby Cercedilla a half hour's search on many brooms revealed another pair of *attenuata*. Regular stops at broom bushes around Navacerrada, El Escorial and other localities produced no additional material, only a wealth of butterflies along the roadsides.

On 5th July, my final day in Madrid, I drove to similar areas in an attempt to obtain males. However, I only had success at my now favourite site near Los Molinos, where I collected five more males of *attenuata* and noticed several females of both species. Unfortunately I was unable to locate any males of *hispanica*.

Colour variation of adults — Several specimens were collected for use in breeding and/or as pinned specimens. I made the following notes in the field:

C. hispanica — 17 females. Mainly light green, closely matching the colour of broom stalks, but a light brown form also occurred (4), and these were mainly located in grasses near broom bushes. However, green examples were also found in the same area.

C. attenuata — 12 females. Usually leaf-green, a perfect match of broom stalks. Two other colour forms were noted, one very dark brownish/black specimen and one light brown example. Males, thin and fragile looking, were all typical brown with longitudinal black stripes. Colour variation in stick-insects is seldom recorded in the literature, but can be extreme and should be taken into consideration when making identifications.

Parasites — I found a single parasitic larva of the fly *Thrixion halidayanum* (Tachinidae) in the abdomen of a female *attenuata*.

Captive breeding — I used an all net cage in the Madrid hotel room and back in England. Broom cuttings were kept in water and changed twice a week. Temperature range 23-32°C (73-90°F) and humidity 50-60%. Females of *attenuata* frequently paired with different males, and remained coupled for a variable length of time, ranging from approximately 30 minutes to several hours. However, none were seen paired in the wild. They often rested on the netting and some females glued eggs on the net, particularly around joins. In addition, I had some success with using corrugated cardboard, where females glued eggs about 1-3 cm inside the edge of the cardboard. Small containers of silver foil dishes were left filled with peat, at various positions in the cage, e.g. between broom branches and on the base of the cage. Eggs were readily glued in these containers and *hispanica* in particular buried her eggs a short distance below the surface (1-2 cm). As in an earlier attempt at breeding *hispanica* from France (stock kindly provided by John Muggleton), some females were reluctant to lay many eggs. Neither *Leptynia* species are prolific layers, each female depositing less than 100 eggs on average, sometimes with intervals of a few days between egg laying spells. Adults lived approximately two months, but may sometimes survive longer in captivity (4-5 months). In the wild they rarely live longer than three months and are usually seen between April and September. June to early August is the best searching time in Spain.

I kept eggs mainly dry, for excess moisture (liked by many phasmid eggs) can kill the forming nymphs. Eggs may be laid out on moist sand to hatch, in the early part of the year, i.e. January/March, after a lengthy spell of keeping them cool and dry in winter, such as in a plastic box. Eggs need to be gently removed from netting with a moist paintbrush, or can be left in the cage. Egg hatching is unpredictable, and in spring 1992 only *attenuata* nymphs hatched. However, the offspring were easy to rear on potted *C. scoparius* and reached maturity in two and a half months. A potted foodplant results in minimum disturbance to these fragile insects. The other eggs are still viable at the time of writing (November 1992) and indeed *hispanica* are hatching following periodic spraying of the eggs. French *hispanica* tend to hatch very early (January) in captivity.

Foodplants — *Cytisus* species are favoured in Spain by both species, usually *C. scoparius. L. hispanica* was also reported by Gangwere et al. (1973) "a couple of records" on *C. purgans, Genista cinerea* and *G. florida*. In contrast, *Dorycnium suffriticosum* is the usual foodplant in France for *hispanica,* and sometimes *Rosa canina*. However, Langlois and Lelong (1992) have recently located *hispanica* on *Dorycnium* in the Castellón region of Spain. In Portugal *attenuata* has been reported on *Cistus* and *Ulex*. In captivity *Cytisus* species, *Heliathemum* sp., *Rosa* sp., *Genista* sp., and *Spartium* sp. are all accepted by both species. Nymphs and adults eat the leaves, stems and flowers of *Cytisus*.

Distribution in Spain — Bullini & Nascetti (1987 and subsequent papers) believe that *Leptynia hispanica* is a species complex; data has often referred to *L. hispanica* A (Benisa, Alicante) and *L. hispanica* D (Boniches, Cuenca), the latter a supposed hybrid species. *L. attenuata* is also considered to be a species complex. The distribution in Spain has up to now been little known, but I give below a very detailed list of localities, which greatly extend the known range of both species (see Fig. 1). Many of the records are unpublished, derived mainly from data labels in the collections of Museo Nacional de Ciencias Naturales, Madrid and the Zoölogisch Museum, Universiteit van Amsterdam.

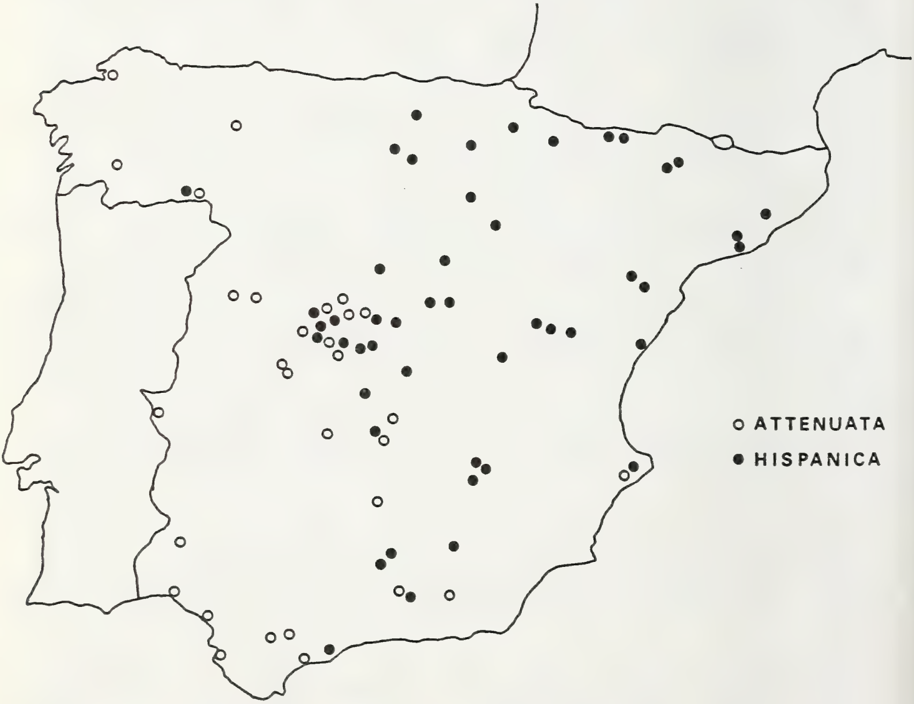

Fig. 1. Map showing Spanish distribution of *Leptynia* species.

Explanatory notes to records: Maps — based on 1992 Michelin road maps of Spain: North West (Michelin No. 411), Northern (442), North East (443), Central & Western (444), Central & Eastern (445), Southern (446). Localities can be traced by reference to map indexes, but some smaller villages, whilst included on the map in nearly all cases, are excluded from the index.

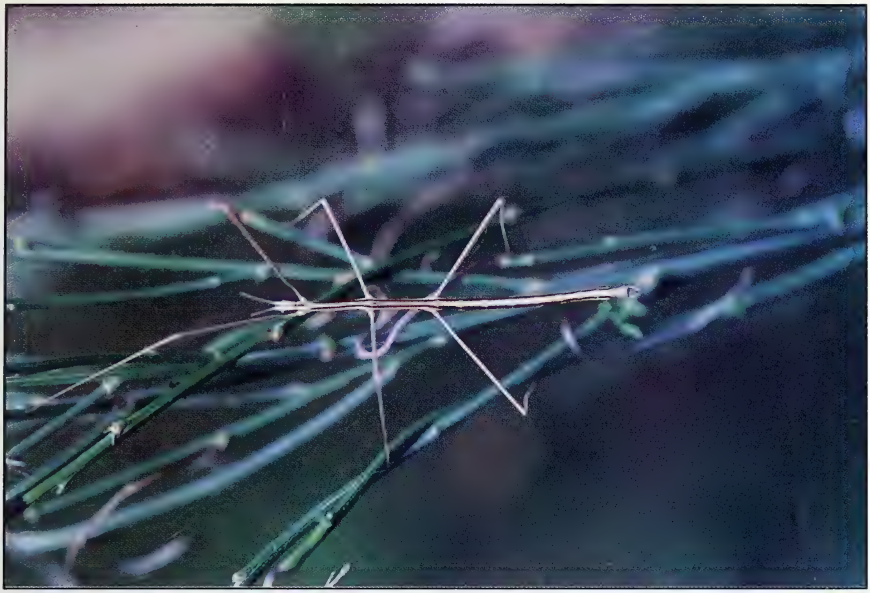

Fig. 1. Male *Leptynia attenuata*.

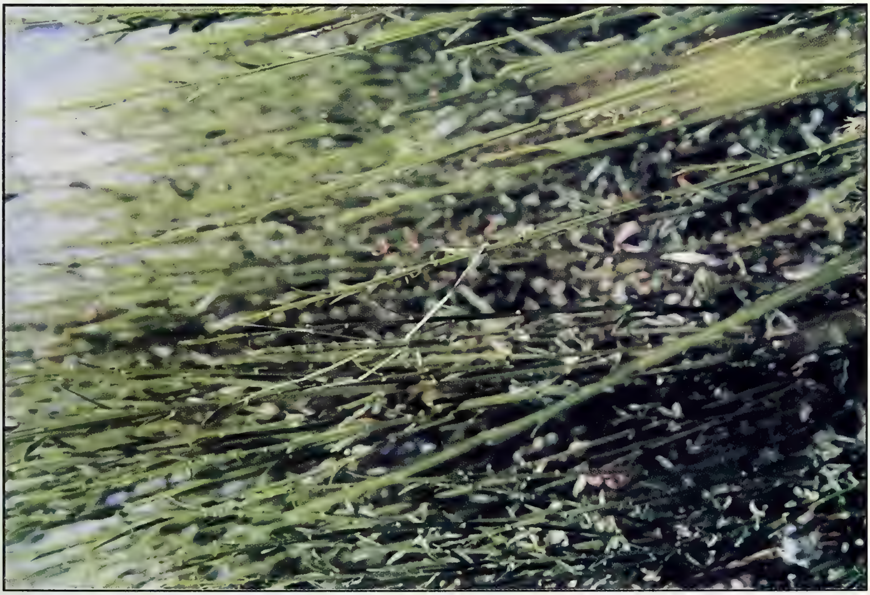

Fig. 2. Female *Leptynia attenuata*.

PLATE Y

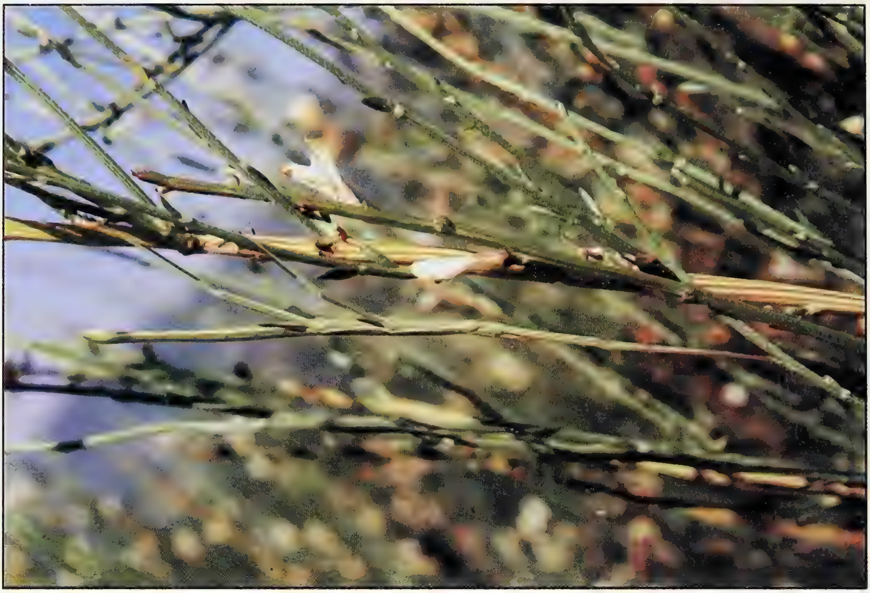

Fig. 3. Female *Leptynia hispanica*.

Fig. 4. Author amongst the brooms at Mirador de la Pelona, near Los Molinos.

PLATE Z

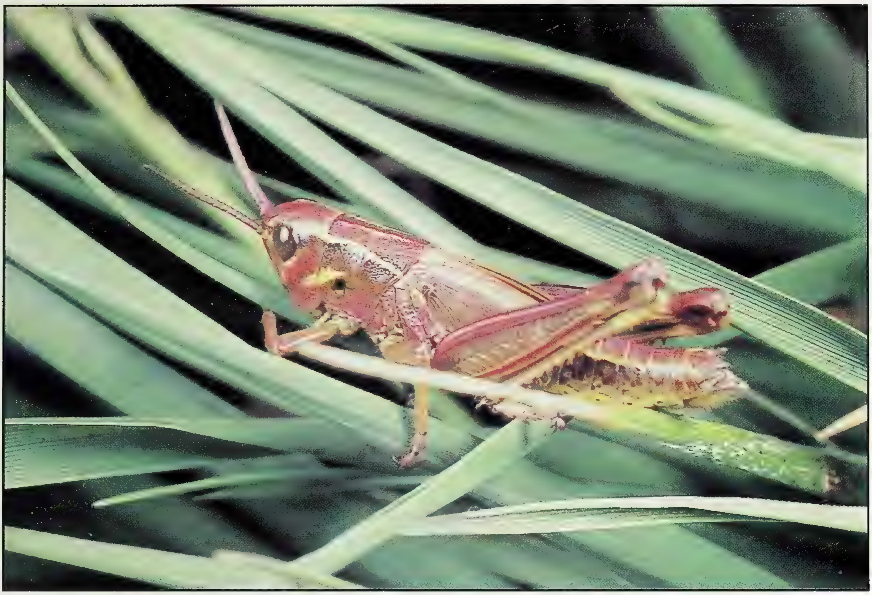

Fig. 5. The pink form of Large marsh grasshopper, *S. grossum.*

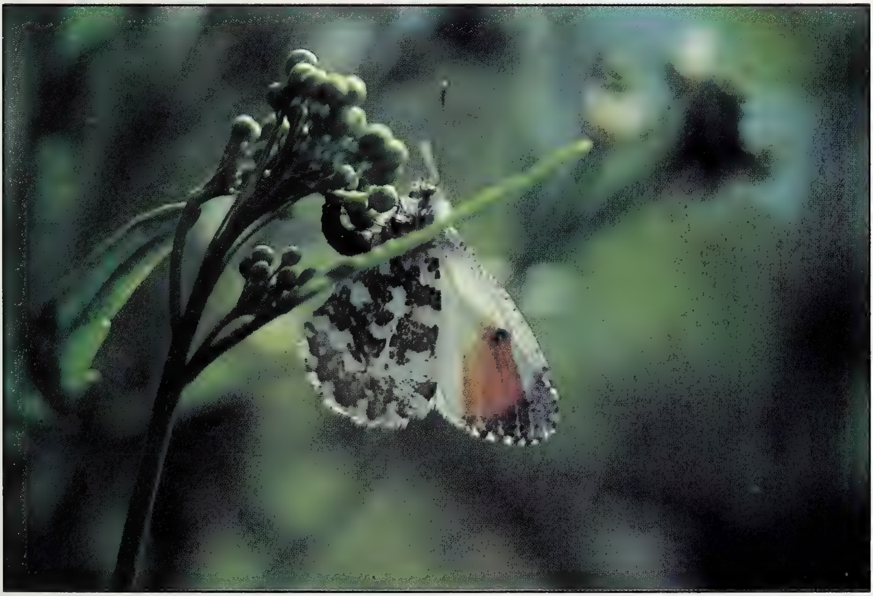

Fig. 6. Gynandrous Orange-tip, *A. cardamines,* laying an egg. *(Photo: Jenny Canham).*

PLATE AA

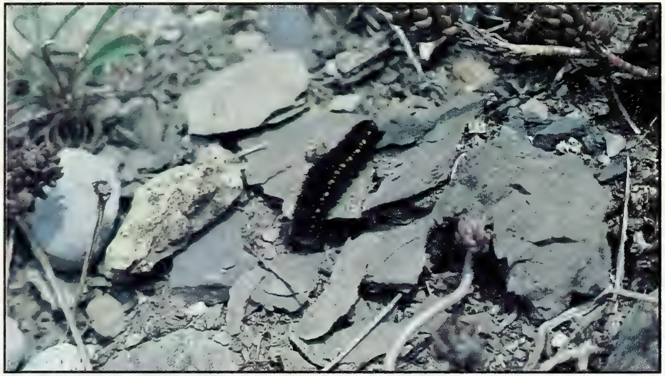

Fig. 7. Larva of Apollo, *P. apollo (Photo: P. Cribb).*

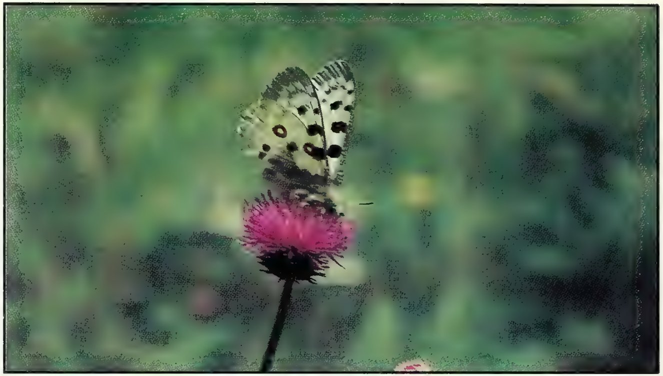

Fig. 8. Adult Apollo butterfly, *P. apollo (Photo: P. Cribb).*

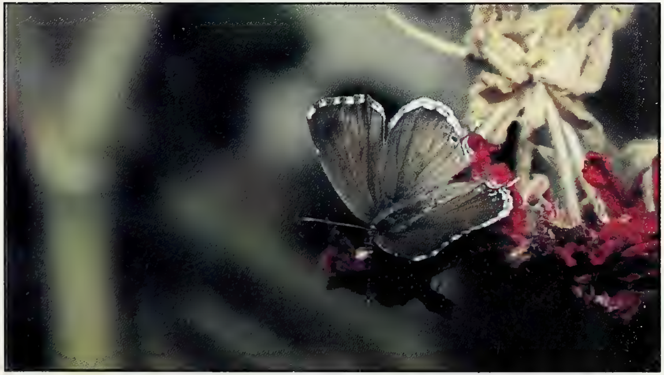

Fig. 9. *Cacyreus marshalli,* (upperside) *(Photo: P. Grey).*

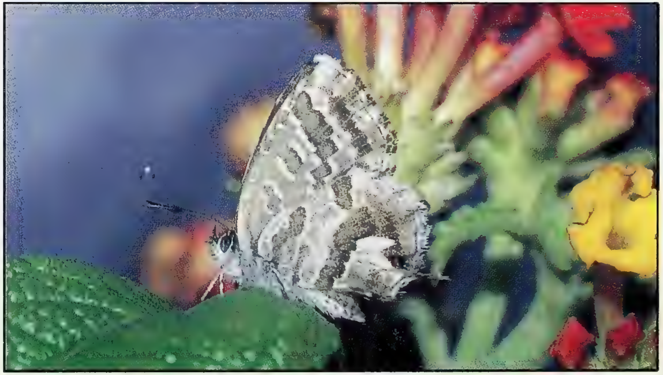

Fig. 10. *Cacyreus marshalli,* (underside) *(Photo: P. Grey).*

PLATE BB

Key to numbers: 1 Bolivar (1926), 2 Brock (own records), 3 Bullini & Nascetti (1987), 4 Ebner (1941), 5 Gangwere et al. (1973), 6 Harz—Harz & Kaltenbach (1976), 7 Lelong (personal correspondence), 8 Llorente (1980), 9 Peinado et al. (1990), 10 Pulido (1990), 11 Ragge (1965, specimens lodged in the Natural History Museum), 12 Willemse (personal correspondence), 13-15 Museum material collected mainly in the 1930s - 1960s, 13 Natural History Museum, London, 14 Museo Nacional de Ciencias Naturales, Madrid, Spain, 15 Zoölogisch Museum, Universiteit van Amsterdam, Netherlands. Some records have already been included in Brock (1991).

LEPTYNIA HISPANICA (Bolivar, 1878)

Type localities — *Spain:* Logrono (La Rioja), Madrid, Escorial (Madrid), Alcarria (Guadalajara). Specimens housed in Madrid. Four syntypes in the Oxford University Museum (No. 886), and probably others e.g. Vienna. "Type" mentioned in localities, refers to syntypes. "Male" indicates known bisexual populations.

North West Spain

Zamora: Lago de Sanabria (14); Puebla de Sanabria (15).

Northern Spain

Navarra: Ciaurriz (15); Puerto Erro (15). Burgos: Gayangos (not in Santander region, 1); Mozuelos (14); Canizar (15); Galarde (15). La Rioja: Logrono (Type). Soria: Numancia (14); Medinaceli (15). Segovia: San Rafael (male 14); Navas de Riofrío (14).

North Eastern Spain

Barcelona: Montserrat-Hospedaria to S. Geronimo (15th July 1901, A.H. Hamm — Oxford University Museum). Huesca: Pena de Oroel, Jaca (1); Jaca (14); Valle de Ordesa (14); Gistain (14). Lérida: Serradell (1); Puente de Montanana (15). Teruel: Bronchales (6); Teruel (14); Albarracin (14); V. Alcaniz (15); Ráfales (15). Zaragoza: Calatayud (15). Tarragona: Coll d'Alforja (15); Riudecols, near. Reus (15); Prades (15).

Central and Western Spain

Madrid: Aranjuez (1, 14); near. Los Molinos (2); Guadarrama Mts. (5, 7); Madrid (male Type, 6); Montarco (6, 14); Cercedilla (14); El Escorial (Type, 14); Brunete (male 14); Cienvallejos, Brunete (male 14); Navacerrada (14); Miraflores de la Morcuera (15). Guadalajara: Alcarria (Type); Matarrubia (9); Uceda (9); Alcolea del Pinar (15). Cuenca: Boniches (3); Altomira (14). Albacete: Alcaraz (10); Cotillas (10); Paterna (10); Riopar (10). Toledo: San Pablo de los Montes (male 14). Ciudad Real: Puertollano (male 14).

Central and Eastern Spain

Castellón: Alcocéber (male Langlois and Lelong, record just received). Alicante: Benisa (male 3).

Southern Spain

Jaén: Siles (1); Sierra de Cazorla area (various e.g. Nava del Espino; Nava de Paulo; Nava de San Pedro and Fuente de Acero) (11); Nava de San Pedro, Sierra de Cazorla (male 14, also collected by sweeping at night, particulary in this area, near a stream (collected by P.M. Newman and A Bown, 1963) (13). Granada: Granada (1, 14); Sierra Nevada, Pinos Genil (15). Málaga: Marbella, Alhaurin (male 15).

LEPTYNIA ATTENUATA Pantel 1890

(Note — Bolivar (1926) wrongly formed a new genus *Leptyniella* for this species. The genus is now, of course, a synonym of *Leptynia*).

Type localities — *Portugal:* San Fiel, Spain: Talavera (Toledo); Urda (Toledo); Cepeda (Salamanca). Type material — lodged in Paris and Madrid Museums (from all localities).

North Western Spain
La Coruna: Puentedeume (14). León: Villablino (14). Zamora: Puente de Sanabria (15). Salamanca: Cepeda (Type); Mogarraz (1); Béjar (14); Sequeros (14). Orense: Orense (14).

Northern Spain
Segovia: San Ildefonso La Granja (7); San Rafael (14); Aguilafuente (14). Avila: Puerto de las Pilas (7); Navarredonda de Gredos — Almanzor (12); Arenas de San Pedro (14); Gredos (14).

North Eastern Spain — No records

Central and Western Spain
Madrid: Cercedilla (1,2,4,6,7); Galapager (1); Nr. Los Molinos (2); Guadarrama Mts. (5); El Escorial (12, 14); Navacerrada, Embalse de Navalmedio (26th July 1983, Ragge 13); Cercedilla, Estación Alpina (14); Cercedilla, El Ventorrillo (14); Cienvallejos, Brunete (14); Los Endrinales (14); Miraflores de la Sierra (14); La Cabrera (14); Navarredonda (15). Ciudad Real: Puertollano (14); Almadén (14); Pozuelo de Calatrava (14). Toledo: Talavera (Type); Urda (Type); San Pablo de los Montes (14). Cáceres: Valencia de Alcántara (1, 14).

Central and Eastern Spain. Alicante: Sierra de Bernia (6).

Southern Spain
Huelva: Donana, Alr. de Palacio (8, 14); Jabugo (15); Mazagón (15). Jaén: Jándula (15). Cádiz: Puerto Real (14); Ubrique (15). Granada: Pinos Puente (1); Puerto de la Ragua (1983 Ragge 13). Málaga: San Pedro de Alcántara (12); S.E. Ronda (12).

The above mentioned records indicate a wide distribution across virtually the whole of Spain for both species. Further studies on population levels and types of reproduction would lead to a much greater knowledge of these species, although it appears that *L. attenuata* has yet to reach the north-eastern part of Spain. In comparision, *L. hispanica* is poorly represented in extreme western parts of Spain.

I should like to express my thanks to Dr Vicenta Llorente, Museo Nacional de Ciencias Naturales, Madrid, who read a draft of this paper and very kindly provided invaluable comments on a few Spanish localities I could not locate on maps, in addition to correcting other locality information. Dr Llorente's help has been much appreciated, including access to the Madrid collections in 1991. Likewise, I am grateful to Willem Hogenes for his assistance in examining the Zoölogisch Museum, Universiteit van Amsterdam collection.

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BOOK REVIEWS

The spiders of Great Britain and Ireland by M.J. Roberts, 4to. 2 Vols (text 458pp plus 7 colour plates and many Figs.; plates 256 plus 20pp text.) Compact edition in paperback. Harley Books, Colchester 1993. ISBN 0 946589 46 1. Price £80.00

This paperback edition of the definitive book on spiders combines the original two text volumes into one and this does indeed make for easier reference when the book is in use. Unlike many paperbacks, the signatures are *sewn,* not the so-called "perfect bound" so often to be found, and in use the pages open and stay flat without coming loose. A sure sign of quality production. The text and plates are the same as in the first edition, but the book has been up-dated since the original edition five years ago in order to incorporate recent additions to the British arachnid fauna and take account of recent research. These additions have been added as an appendix (which is reviewed below) and which is sold separately as a supplement. This thoughtful method of updating means that those who bought the hardback can have the new information without the necessity of buying another heavy and expensive book. The lower price should also bring this work within reach of those who until now have had to rely on a library copy. The original hardback volumes, which came out at intervals, were reviewed in our *Bulletins* **45**:12-13 and **47**:26-27. The favourable comments made about them then still apply.

The moths and butterflies of Great Britain and Ireland Vol. 7 part 2 Lasiocampidae to Thyatiridae. Edited by Maitland Emmet and the late John Heath. 4to. pp400, 4 colour plates, text Figs. and maps. Paperback edition. Harley Books, Colchester 1993. ISBN 0 946589 42 9. Price £27.50.

For the original review of this book see *Bulletin* **50**:283-284. The then reviewer stated that it was "an absolute must for any entomologist" and in our opinion this view stands. Having had a copy on my shelves for the past couple of years it is already showing signs of use as I have had frequent occasions to refer to it for information.

This paperback edition has the original printing of the plates and the text has had only very minor typographical changes made, with a few changes to the nomenclature also incorporated (will taxonomy ever stabilise?). A large tome now at the price of your average newly published novel and should be within the reach (or if not suggest it as a present!) of even the youngest entomologist.

The Hawkmoths of the Western Palaearctic by A.R. Pittaway folio. pp240, 20 colour plates, text Figs. and maps. Hardback, cloth bound. Harley Books, Colchester 1993. ISBN 0 946589 21 6. Price £55.00.

This long awaited book has now been published and is of the usual very high standard produced by Harley Books. As perhaps fits in with these large moths, the book itself has a larger page size than others from the Harley stable. We hope to publish a full review in our next issue. Editor.

Supplement to The Spiders of Great Britain and Ireland by M.J. Roberts. 4to. pp16, paperback. ISBN 0 946589 47 X. Harley Books, Colchester 1993. Price £3.75 post free.

This supplement to Volumes 1 and 2 of Roberts masterly contribution to the identification of British spiders gives all the changes, minor corrections, and up-to-date nomenclature that have come to his attention since it was first printed. It also includes descriptions of those species, new or added to the British list, that have been discovered since the first tomes were produced. The text and drawings are of the same format that Roberts used in his initial works and the quality is of the same high standard. Harley Books continue to produce high quality books for the naturalist and this supplement, together with the author's reputation for accuracy, is no exception. It would be good if other publishers tried to emulate this practice, updating previously released books at low cost, so that naturalists can amend their information without the expense of having to buy completely revised whole works. This is a fine example of author and publisher working together for the good of the natural history consumer; long may it continue. James Wright

BREEDING *PARNASSIUS APOLLO,* THE APPOLLO BUTTERFLY

by David Marshall (3972)

Huthnans, Keeble Park, Perranwell Station, Truro, Cornwall TR3 7NL

The very name of the species conjures up a romantic view of remote, desolate tracts of terrain; elevated, ethereal retreats where the gods of the ancient world lived in splendid isolation. In fact, when first visiting a typical habitat of the Apollo, one could be forgiven for doubting whether any self-respecting butterfly, apart from the *Erebia* species, would be found there. On the continent of Europe there are many places where this butterfly may be seen in a highly accessible river valley lush with thistles and many other flowers or beside a flower-edged road. However, one gets a strong feeling that it really does belong in the high rocky plateaux, amongst extensive limestone pavement where stonecrops (*Sedum* spp.) are growing in the crevices and where an occasional stream drops down from the snow melt high above. The larva is shown on Plate BB Fig. 7 and the adult Fig. 8. There are plenty of references to the characteristics of the Apollo so these will not be dwelt upon here, except for one which may be of advantage to lepidopterists. A most noticeable factor in the life of the species is its dependence on strong sunshine to become active. In its habitat the difference in temperature when the sun is shining and when it is obscured, even for a short while, is very obvious and the butterfly rapidly becomes torpid when it is overtaken by dull weather and cold winds. To examine individual specimens in detail, sunshine and showers present an ideal situation. During and immediately after a shower, the butterflies may be picked from flower-heads by hand and examined. A saturated insect will sit or crawl about, with wings outstretched, on a flower head when the sun reappears. The rain droplets soon evaporate from the wings and body and the butterfly again becomes able to fly and go about its business. During such an interval specimens may be closely examined for size, markings, sex, etc. Mated females are identifiable by the presence of a sphragis, a dark shiny capsule, attached to the rear underside of the adomen; not to be confused with the shiny black claspers of the male which he tucks under his furry body when held with the wings closed together over his body.

Breeding the Apollo in captivity is not difficult if one cardinal rule is observed. Just as the adults seem highly dependent on sunshine, so too are the larvae. My experience has been that soon after emerging from the egg, the small black larvae need some artificial light and heat (since sunshine cannot be relied upon in Britain). This may be supplied quite easily by a 60 watt bulb set at a distance of 15-18 inches. Without this assistance the larvae never seem to start feeding and simply waste away in a day or two.

A reasonable period to expect Apollo eggs to be laid in the wild would be late July and early August in most localites. In captivity things tend to get out of synchronisation and this advances more and more as the years of a captive colony accrue. In a plastic container, say 8 × 8 × 4 inches (not critical), with black nylon netting covering the top and an absorbant paper base liner, plus some *Sedum* sprays (but not *Sedum acre*) the female will lay a hundred or more ova. A few ova will be dotted about the *Sedum* and the base liner but the majority will be tucked up under the lid and sheltered top netting. If the centre of the original plastic lid (of a typical super-market two litre ice-cream container) is cut out, then the lid frame of one to two inches in width will conveniently trap the nylon cover in a safe and simple fixing. It is under this portion that most of the ova will be found. This characteristic is probably indicative of where the wild Apollo entrusts her over-wintering ova in the natural habitat. On one of our trips abroad to the Alps, Peter Cribb observed the Small apollo, *P. phoebus,* ovipositing on a boulder above a mountain stream where the ova were cemented into irregularities on the underside of overhanging projections — and only a little above the water level! The ova may be kept in small plastic boxes, preferably in a cool dark place. They can be over-wintered in a refrigerator at around 40°F. They must be checked daily during the winter months as they will emerge despite the low temperature early in the year and will die if not given immediate attention.

An example of how the life-cycle becomes unduly advanced may be observed from the following experience. Ova laid in July by a wild female were kept in a netted container in a cool, gloomy garage until October, when they were transferred to the door-shelf of a refrigerator. The ova started to hatch on the 15th January. The larvae were transferred to small plastic pots and given two to three hours under a 60 watt spot-lamp each day. Feeding on *Sedum alba* commenced after three days with a few lavae starting on the second day. During the following week the larger larvae were moved to transparent plastic pots, 4 × 4 × 2 inches. (KRECA pots, as used to supply live-food cricket nymphs, etc., were used.) These small pots have very small perforations on three sides. By the 29th January hatching of ova had become sporadic and the last larva emerged on that date. By the 10th February most larvae were in their second instar but, taking the group overall, sizes ranged from 5mm to 15mm with the majority being about 10mm. The majority changed from second to third instar around mid-February, emerging looking very bright with a pale brown head-shield which soon turned black. As they grew, the period of artificial lighting was slowly extended with full advantage being taken of any natural sunshine. When contained in a netted tub, arranged to catch a maximum amount of sunshine, there are periods when the larvae will seek some respite from total exposure, especially when a change of skin takes place. By the first week in April some full-fed larvae started to search for pupation sites. At this time, the larvae like to get tucked away in a secure place partly under cover of thick shrubby herbage or a stone. They take quite a long time to pupate, first spinning a loose cocoon, and should not be disturbed.

First pupae were observed on the 8th April, the first male butterflies emerging on the 4th May followed by females from the 8th May onwards. As the butterflies emerged they were transferred to breeding cages, 16-18 inches in diameter by 36 inches deep, containing nectar-yielding plants with *Sedum* spp. scattered over the netting covering the top of the cages. Natural pairings occurred in these cages placed in a greenhouse. Weather over the period was mainly sunny but with some overcast or showery spells during the day and heavy overnight rain. The greenhouse was well ventilated and at temperatures around 72°F pairings occurred and lasted between six and twenty-three hours. In a closely observed pairing, mating started at 11am at 72°F. By 4pm the weather had become cloudy and the temperature dropped to 65°F. The pair remained in copula until 10.30am on the following day when the temperature in the greenhouse had reached 72°F. The remainder of this day and the next were dull and overcast with temperatures around 70°F with the butterflies quiescent although they were fed a small amount of 10% honey-water solution. On the fourth morning after mating a thick mist prevailed until mid-day when interrupted sunshine followed. The temperature in the greenhouse rose to between 80-85°F, and this paired female, with others that had also paired, laid freely. During this particular season the females laid between 74 and 98 ova each. The largest number of ova from a captive colony female has been 120.

My most successful breeding of the species occurred when I kept about a dozen larvae to a plastic tub about 16 inches square by 8 inches deep. Apart from the *Sedum* plants, the tubs were nearly half filled with sand and Cotswold stones and slates arranged to provide basking areas and shady retreats. Large larvae sun themselves a great deal and boost their metabolic rate so as to indulge in subsequent ravenous eating and rapid movement. Kept in this way, a light spray of water was given every morning and evening and the tubs were moved under supplementary lighting/heating (as previously mentioned) whenever this was necessary due to lack of sunshine. During the pupal stage warmth, but not direct sunshine, is best with a light spraying of water once or twice a day. Should pupae become over-dry or baked, they will either not emerge or will be crippled.

Even when fresh flowers are supplied, it is desirable to give supplementary nectar, such as 10% honey-water, towards the end of each day and spray the cages with water each morning. This can be repeated as necessary during the day. In the greenhouse many pairings have taken place in temperatures ranging between 70-75°F. In any open garden situation in breeding cages (1 metre cubes of nylon netting) placed over a small rockery planted with *Sedum alba* or *S. rupestre* (= *reflexum*), my Cotswold experience over a few years was that pairings occurred fairly regularly. Few ova were laid, however, usually because of unsuitable weather. In Britain, therefore, one is likely to be more successful when breeding this species if it is attempted using cages in a greenhouse environment.

(Editor's note:- There is a very extensive article by Gunter & Ingo Franke, *15 years rearing: Observations on Parnassius apollo,* with three colour plates (of the adults) and other illustrations, pages 457-505 in Vol. 13 (May 1993) of *Nachrichten des entomologischen Vereins Apollo*. The article gives their observations on the ecological requirements of the larvae, especially on the temperature preferences and the influences of biotical and abiotical factors on the size of the adults. The colour patterns of the larvae seem to be a reliable character to classify subspecies. The possible causes and the inheritance pattern of f. *flavomaculata* and changes on the phenotype of the adults by artificial selection over six generations are discussed. On pages 507-529 of the same issue there is also a very useful article, with colour plate, *The breeding in captivity of Charaxes jasius* by M. Sanetra and W. Peuker.)

BIRD PHOTOGRAPH OF THE YEAR, OR, WAS THE HOOPOE RESPONSIBLE FOR EXTINGUISHING THE ESSEX EMERALD?

The British Birds "Photograph of the Year" was won by Mr Alan Williams and shows a Hoopoe (*Upupa epops*), on an Essex roadside verge, flicking a caterpillar into the air before swallowing it. An excellent photograph which well illustrates the fate of thousands of caterpillars, for Hoopoes are largish birds (as are some other insectivores), requiring large amounts of arthropods for their sustenance, especially when rearing young. To them food is food and they are quite unable to distinguish rare and endangered prey species from common and abundant ones.

BOOK REVIEW

Collins Guide to Insects of Britain and Northern Europe by Michael Chinery. 3rd Edition 1993. 320 pp. 60 coloured plates plus line drawings. Hardback. Price £14.99

This third edition reverts in format to that of the first, the second being a paperback with a short section on arthropods other than insects. This is now omitted and the plates are brought together in the centre of the book wheras in the previous editions they were interspersed with the text. The previous method seems more satisfactory, avoiding the need to search for the appropriate text.

The larval plates of aquatic species have been omitted but four pages of lepidopterous larvae are introduced. The plates are beautifully produced, the work of Brian Hargreaves, Denys Ovenden and Gordon Riley. Plate 57, fig. 11 lacks a name and Plate 44, which figures the larvae of some butterflies, is somewhat unconvincing. These were dealt with much better in the second edition.

Improvements are the inclusion of a key to the Heteroptera, based on that in *Land and Water Bugs of the British Isles* published by Warne & Co. and long out of print, also keys to the stonefly families, the Caraboidea and Diptera families. Again I consider this book an invaluable source of information for anyone wishing to expand their knowledge of insects and should prove helpful to those who may be called upon to survey the entomological content of any site, something which is required today on so many occasions when sites are under threat from development. Collins are to be congratulated on their continuing contributions to the study of entomology. PWC

A FURTHER NOTE ON DRAGONFLIES AT ALVECOTE POOLS NATURE RESERVE

by Brian Mitchell (8068)

As well as those species reported in my earlier article (April *Bulletin* page 74), two more species were added to the reserve list during 1992, which brings the total number up to twenty. These were *Brachytron pratense* (Hairy dragonfly), an immature male having been observed at close quarters by me on 27th May. This is notable in that it is the first Warwickshire record for over 50 years, the previous reports having been in the Rugby area during the 1930s. Finally, and at long last, a species which had been expected for the past few years, *Orthetrum cancellatum* (Black-tailed skimmer) was seen in small numbers in two areas by Harry Morrall and John Davies, the first sighting on 14th June.

GYNANDROMORPH ORANGE-TIP LAYS AN EGG

by Rev Robert and Jenny Canham

684 Galleywood Road, Chelmsford CM2 8BY

While out recording butterflies in our garden we spotted an apparent male Orange-tip (*Anthocharis cardamines*) laying an egg and managed to obtain a photograph which is shown on Plate AA Fig. 6. The specimen was in fact a gynandromorph and although the wing-tips had distinctly male colouring, anatomically it must have been female. She/he visited us for several days. The fate of the egg is, however, unknown.

PURPLE HAIRSTREAK OVA: CREATURE FEATURE

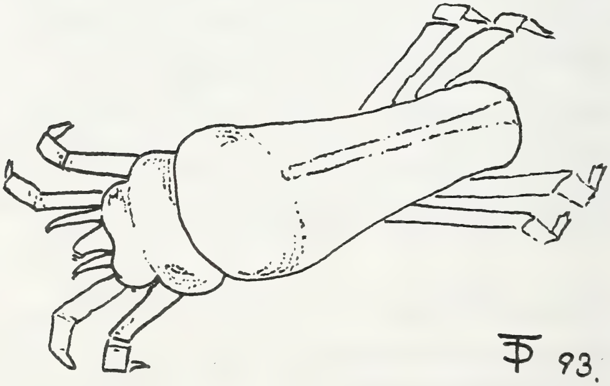
by Trevor Peach (9337)

4, Martindale, Kingsthorpe, Northampton NN2 8UW

Following the purchase of a dozen Purple hairstreak (*Quercusia quercus*) ova attached to their oak buds, I set them out into a plastic container and placed them in the 'fridge to overwinter inspecting them regularly for signs of any mould growth. On 15th February this year one egg was seen to be holed just off-centre at the top, but no larva could be found.

On closer inspection under my amateur microscope I found something to be moving inside the egg-case, so I put a spotlight as close as possible to make for a clearer view. After a few minutes a creature appeared from the hole (probably due to the heat from the 60 watt bulb). I scoured every insect book in my collection but nothing this small is shown. However, reading through *A Lepidopterist's Handbook* by R. Dickson (Chapter 5, Parasites, pp 61-64), most parasites seem to be Ichneumon wasps and chalcids which I have come across in the past.

So, for interest to others, I enclose a drawing of the insect which perished after a few days and unfortunately I did not know how to preserve such a small item.



A brief description is as follows:— Colour is a translucent amber with a white line on back. Size about one fifth the diameter of the hairstreak's egg. Wingless, eight legs, three smaller projections between front legs.

It does not seem as if the insect hatched from the said egg, but more likely it ate its way in as it was inside the egg when first observed.

THE GERANIUM BRONZE, *CACYREUS MARSHALLI,* (LYCAENIDAE): A NEW SPECIES IN EUROPE

by P.R. Grey

Coridon, Steppeshill, Langton Matravers, Swanage, Dorset BH19 3ET

In the past two years this little butterfly has been seen in increasing numbers on the islands of Majorca and Menorca.

My wife and I first noticed *C. marshalli* in October 1991 at Cala Galdana on the south coast of Menorca where it was feeding on Lantana flowers in a small garden where Pelargoniums were also present. We readily recognised it as we had studied and photographed it in South Africa, at Cape Town, in the wild on Table Mountain and along the southern part of Cape Province where its larval foodplant, *Pelargonium,* is indigenous.

C. marshalli is dark brown in both sexes with a fringe chequered in white and brown; the hindwing has a white-tipped brown tail and a dark white-ringed eyespot at the base of the tail. The underside is pale brown with white-edged brown spots. The wingspan is about 20mm.

The butterfly lays its eggs on the flower buds of *Pelargonium;* on hatching the larva disappears inside the bud and eats the contents. In Cape Province there appears to be a preference for the wild pale purple flowers but they also lay on the more colourful varieties developed for parks and gardens.

When we first saw the Geranium bronze in Menorca we had visions of fame as a result of our discovery but on return home found that it had already been reported from Majorca and referred to the British Museum for identification. Since then several sightings have been reported from both islands.

Although *C. marshalli* is widely considered to have been introduced from Cape Province with *Pelargonium* plants it seems peculiar that it is widespread in Majorca and Menorca but not on the European mainland. Having studied migration over many years and corresponded with the late C.B. Williams I will believe almost anything and one wonders whether, like other Lycaenids from South Africa such as *Lampides boeticus, Syntarucus pirithous* and *Zizeeria knysna,* it might have made its way to the Balearic Islands under its own steam!

The butterfly is illustrated on Plate BB, Fig. 9 upperside; Fig. 10 underside.

REPORT OF, AND EXHIBITORS AT, THE 1992 ANNUAL EXHIBITION HELD AT KEMPTON PARK RACECOURSE ON 3rd OCTOBER

by Roy McCormick (3375)

125 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UP

The day started grey and rainy, but a good queue formed about an hour before opening time and a couple of the committee members sold programmes to ease the rush when the doors opened. Because of the weather conditions it was decided to let the people waiting to get in go upstairs each side of the entrance until opening time.

The numbers of people attending were slightly up on last year, with 1039 receipts being recorded; this upward movement could be because of the new policy of making everyone wear badges once in the building; this new idea for our Exhibition is one borrowed from other Exhibitions that I have been to.

There were thirty-one applications for exhibit table space, with twenty-four exhibits and reports; a further twelve applications did not have a report and I had five exhibitors who did not send me the booking form; if all the people who booked tables turned up with an exhibit, we would have had a total of thirty-six. A slight up-turn on last year's thirty-one possibles that might have exhibited.

Come along all you members (1900+) where are you? It is after all your Exhibition. I have placed the exhibits in the most prominent position, and I promise your report will be done in full. What more can I do?

Sixty-five dealers attended selling a variety of goods including a much restricted trade in live and deadstock; also exhibiting were five other Natural History Societies.

I found that the catering this year was excellent; I hope you all agree, but I can only comment on what I found when I went for lunch. The bar was well staffed and all the food counters were open, and I received few complaints from people I asked; all in all a good showing, so let us all hope that this side of our Exhibition is well and truly sorted out.

I would like to thank the following members for helping me to set up on Friday 2nd October, 1993 Colin Hart, Bernard Skinner, Colin Davies, Joan Williams, Peter Baker, Peter Cribb (the old faithful), David Young, Graham Collins and Roger Morris. My thanks also go to Peter Cribb, Roger Morris, Graham Collins and Mark Colvin for helping me to clear-up after the Exhibition; this is not forgetting the helpers who gave up their free time throughout the day. The Exhibition would not run without this valuable source of assistance. Carry on the good work! Just a small note, the helpers on the evening before and the people who help clear up after are invited for a FREE PINT in the local hostelry. Anybody who wishes to help please send your name and address to me nearer the date, which for next year is 8th October, 1993 for setting up and 9th October, 1993 for the Exhibition.

The compiler of these notes is not responsible for claims made by the exhibitors; however, an effort has been made to be as accurate as possible.

A list of Exhibitors follows:—

Peter Baker (9086). North American Butterflies, Lycaenidae and Papilionidae. As with previous years' display, the selection shown represents but a small part of the total number of species to be found within the North American continent. By and large the main absentees are the large number of species which migrate up from the south on a more or less regular basis and can be found most commonly in the southernmost states of the USA. As with last year's display, most of the insects on show have a distinctly Holartic appearance. With few exceptions even those species which migrate north from Mexico and Central America, do not look particularly exotic. Of particular note are: The genus *Incisalia;* this group, among the earliest spring butterflies on the wing, have no representatives in Europe. *Fenesca tarquinius.* The Harvester; this, a completely carnivorous species, feeds as a larva on woolly aphids feeding mainly on alder. The larva buries itself under a mass of aphids and frass, possibly to gain protection from ants which will kill it; it completes its four instars in ten or eleven days. *Lycaenopsis argiolus,* the Spring azure. This — the European Holly blue — is very widely distributed along the eastern seaboard of Canada and the USA as far south as Georgia. It is single brooded in the most northern part of its range, has two generations in the centre and three in the far south. Possibly because of its wide distribution and large number of recorded food plants, it is very variable locally. Special note is made of *Neglecta major.* The Swallowtails, attractive and harmless except for *Papilio cresphontes,* common in the south where it is sometimes called the Orange dog. This can be a pest in citrus fruit orchards. Next year Mr Baker looks forward to showing further groups of the North American butterflies.

Phil Bragg (8737). Phasmids of Borneo.
The display consisted of photographs, and preserved and living phasmids. The majority of the display was from a collecting trip to Sarawak and Sabah during July and August 1992. Some of the live material had been reared from specimens collected on previous trips. The collecting and photographic methods were outlined, along with a brief mention of some of the problems which are particular to phasmid collecting. Included in the live display were typical stick insects, including specimens of an undescribed species of *Lonchodes,* and some of the more "chunky" types such as *Haaniella* and *Dares.* The preserved display showed representatives of all the common subfamilies found in Borneo, including one of the world's longest insects; a 50cm *Pharnacia.* A display outlining some of the problems with the identification and taxonomy of Bornean phasmids is planned for the 1993 exhibition.

Steve Button (7649). Aberrations and forms of *Lysandra coridon.*
1992 proved to be a good year for this species. Some of the more interesting abs/forms collected from localities in Dorset and Wiltshire, where this species

is still plentiful and many of these forms occur regularly. The gynandromorph shown was discovered whilst checking for *accuata/i-nigrum* forms and three dwarf males were also seen. Of about 5000 *coridon* examined, 157 were *arcuata/i-nigrum* types; 32 *obsoleta/caeca* forms; three *antistriata;* two *biarcuata;* two *basijuncta* and one *imbojuncta*. The upperside forms included male *caruleo* and *viridescens;* females *semi-syngrapha, atrascens, virgatus* and *flavescens*. A good range of the less common ground-colour forms were identified, but only represented by a small percentage of the total examined and I have not been lucky enough to observe any *fowleri* types for several years.

T. Carter (6178). British Macrolepidoptera.
Species shown were: Dark green fritillary (ssp. *scotica*) taken near Fort William on a damp hillside in the first week of August 1992; quite large numbers were seen, mainly females. Large white ab. *fasciata,* taken in his garden in 1992 on buddleia. Small tortoiseshell ab. *semiichnusoides,* taken on buddleia in his garden on 31.8.92; he could not believe his luck at finding such a rare aberration. Small white gynandromorph with right side female and left side male taken on buddleia in his garden on 24.8.92; another stroke of luck. Three orange-tip gynandromorphs taken near Doncaster, South Yorks on 18.5.91. Gatekeeper ab.*anticrassipuncta* female plus a typical specimen for comparison; both of these were taken on the same day on 24.7.92 in a rough field near Boston, Lincs; the ab. has large blobs on the forewings. Peacock ab. with the hindwings blind taken on buddleia in his garden in 1992, a typical specimen was shown for comparison. Large heath (ssp. *scotica*); a selection of both sexes taken on a bog near Oban, Argyllshire, while on holiday, in the middle of June.

G.A. Collins (1036). Aberrations of some of the British butterflies.
Species shown were:— *Argynnis paphia* (Silver-washed fritillary) a typical male and a male ab. *ocellata* (Surrey, 18.7.92); also typical and female f.*valesina* (Wiltshire, 24.7.92). *Hipparchia semele* (Grayling) — typical male and a male ab. *monocellata* (Dorset, 30.7.92). *Aglais urticae* (Small tortoiseshell) — typical specimen and ab.*semiichnusoides* (Surrey, 27.7.92). *Lysandra coridon* (Chalk-hill blue) — typical and female ab. *antiobsoleta* (Hampshire, 30.7.92). *Cupido minimus* (Small blue) — typical specimen and ab. *caeca* (Surrey, 3.6.78). Migrant moths shown were *Trigonophora flammea* (Flame brocade) an original female from Swanage, Dorset, 12.10.91 and F1 progeny.

P.A. Cordell (8782). British moths.
Exhibited were: *H. fasciaria* (Barred red) ab. *prasinaria*. Bred from eggs laid by a female taken at Nutfield, Surrey on 16.7.91; the specimen emerged on 22.4.92. *Diaphora medica* (Muslin moth) f. *rustica* taken at Nutfield, Surrey on 16.5.92. A similar specimen was taken at Nutfield on 8.5.70. *C. dominula* (Scarlet tiger) ab. *rossica* taken at Calstock, Cornwall on 16.6.92. *E. tenuiata* (Slender pug) ab. *johnsoni* taken at Nutfield, Surrey on 21.6.91. *E. virgaureata* (Golden-rod pug) bred from larvae found feeding on the flowers of Ladies'

mantle, *Alchemilla* sp. at Albaston, Cornwall on 7.6.92; specimen emerged on 16.8.92. *D. erimita* (Brindled green) ab. with green replaced by white, taken at Nutfield, Surrey on 10.10.90. *H. peltigera* (Bordered straw) taken at Nutfield, Surrey on 2.8.90. *O. gothica* (Hebrew Character) ab. *circumsignata,* taken at Nutfield on 29.4.92. *S. clathrata* (Latticed heath) ab. *albogultata* taken at Nutfield on 2.6.92. *X. fluctuata* (Garden carpet) f. *thules* taken at Newtonmore, Scotland on 1.6.91. *T. cupressata* (Cypress carpet) taken at Nutfield on 13.10.90. *L. suffumata* (Water carpet) ab. *piceata* taken at Inveruglas, Argyllshire on 10.6.91.

Also shown was a short series of *S. mucronata* (Lead belle) from Kit Hill, Cornwall taken from 5th to 10th June 1992; for comparison, a series of *S. luridata* (July belle) from southern and eastern England taken in mid-June to mid-August.

Peter Cribb (2270).

A case of butterflies and moths taken in eastern France or bred from stock originating there — including *Lopinga achine* (F1), *Coenonympha oedippus, Maculinea teleius, M. alcon* and *Parnassius apollo* (F1) raised on *Sedum reflexum*. Also exhibited were minor aberrations of *E. aurinia* (F35) from females taken in Hog Wood, West Sussex in 1956.

Brian O.C. Gardiner (225). Two rare literary items.

1. *The Caterpillar Keeper Quarterly.* The preliminary and only issue of 1939, being a four-page leaflet issued by Pentland Hick of Scarborough. A brave attempt to have a journal devoted to the rearing of insects which was frustrated by the outbreak of the war. 2. *Natural & Philosophical Conjectures on the Ignis Fatuus, or Jack in the Lanthorn; Endeavouring to prove that the Light so called proceeds from some Flying Insect; and not from a Fired Vapour, as generally believ'd.* With a fine engraving of the "Ignis Fatuus" otherwise known as the Indian lanthorn fly. Attributed to Thomas Boreman, published in 1736 and bound up with the very rare 2nd edition of Boreman's *A Description of a Great Variety of Animals & Vegetables,* at least half of which are insects.

Chris Gardiner (5249).

Moths recorded on National Nature Reserves in the East Midlands during 1992. Species include *Epiblema grandaevana* from Northamptonshire; there have only been three other British records of this species since 1910.

Martin Gascoigne-Pees (7468).

A case of butterflies from the Island of Rhodes collected between 26th May and 10th June 1990, mostly in the environs of the village of Lindon and Mount Ataviros. Interesting butterflies seen were Powdered brimstone (*Gonepteryx farinosa*), Eastern rock grayling (*Hipparchia syriaca*), Lattice brown (*Kirinia roxelana*), Freyer's grayling (*Neohipparchia fatua*), *Polyommatus loewii, P. amalthea* (with brown females), *Melanargia telemessia* and *Yphthima asterope*.

Norman Hall (7895).
Two sections were exhibited. In (1) was shown bred examples of *Marumba quercus* D. & S., the Oak hawkmoth, with notes on breeding. The other display showed moths from Hastings Country Park, Sussex, captured in 1992; this included *Minucia lunaris* (Lunar double-stripe) which was obtained using sugar ropes on 24th May.

Andrew Halstead (6346). Three exotic beetles brought to Wisley Gardens.
During the course of a year the Entomology Department at the Royal Horticultural Society's Garden at Wisley, Surrey, deals with several thousand enquiries. These mostly concern plant pests and other common garden insects but occasionally some more interesting specimens are sent in that originate from overseas. The three beetles exhibited were received during 1992. An unidentified tortoise beetle (Chrysomelidae). Found dead on 10.8.92 amongst the leaves of an air plant (*Tillandsia* sp.) being grown as a house plant. Country of origin unknown. *Helenophorus collaris* (Tenebrionidae). Received 11.8.92 from a holiday maker from whose suitcase the beetle had crawled out when they returned from a holiday in Spain. *Lagocheirus undulatus* (syn. *obsoletus*) (Cerambycidae). Received 15.9.92. Emerged from a stem of frangipani (*Plumeria* sp.) being grown as a pot-plant. The plant was obtained as an unrooted cutting at Chelsea Flower Show, May 1992. The supplier was a firm called Roberta's of Shelbyville, Indiana, USA. This species is able to make a squeaking noise when agitated.

Robin James (5005). A bilateral gynandromorph of *Anthocharis cardamines* (Orange tip), with left half male. Caught circa May 1975, by Paul Rose near Billericay, Essex.

Junior Field Week. Darren Mann (8181) and **Marianne Battersby** (9453).
A selection of photographs of the field week, 1992. Surplus stick insects were sold and a raffle was conducted to raise funds for next year's event.

K.C. Lewis (3680). Two cases of assorted insects, mainly Coleoptera, which had emerged during the previous eighteen months from a twelve foot section of silver birch (*Betula alba*) cut into twelve inch lengths and placed in an old fish tank in the garden.

B.J. MacNulty (4528). Lepidoptera from the Gower Peninsular forming part of an ongoing series of exhibits which will eventually cover all the Lepidoptera found on the Gower. Specimens shown, for reasons of conservation, are not all from this site. Exhibited were:— Rhopalocera. *Thymelicus silvestris* (Small skipper), *Ochlodes venata* (Large skipper), *Erynnis tages* (Dingy skipper), *Pyrgus malvae* (Grizzled skipper), *Callophrys rubi* (Green hairstreak), *Quercusia quercus* (Purple hairstreak), *Strymonidia w-album* (White-letter hairstreak), *Lycaena phlaeas* (Small copper), *Cupido minimus* (Small blue), *Aricia agestis* (Brown argus), *Polyommatus icarus* (Common blue) and *Celastrina argiolus* (Holly blue). Sphingidae. *Laothoe populi* (Poplar hawk), *Smerinthus ocellata* (Eyed hawk), *Agrius convolvuli* Convolvulus hawk), *Mimas tiliae* (Lime hawk), *Sphinx ligustri* (Privet hawk), *Acherontia atropos* (Deaths-head hawk), *Deilephila porcellus* (Small elephant hawk), *Deilephila elpenor* (Elephant hawk), *Macroglossum stellatarum* (Hummingbird hawk) and *Hemaris fuciformus* (Broad-bordered bee hawk). Notodontidae. *Furcula furcula* (Sallow kitten), *Phalera bucephala* (Buff tip), *Cerura vinula* (Puss moth) and *Stauropus fagi* (Lobster moth).

R.F. McCormick (3375) and **Colin Penney** (3880).

British Macrolepidoptera, new species seen this year; exhibited were:—

Cossus cossus (Goat moth) from Stonelees, Kent. *Adscita statices* (The forester) from Odiham, Hampshire. *Zygaena loti* (Slender Scotch burnet) from Loch Scridain, I.o.Mull. *Sesia bembiciformis* (Lunar hornet) from Blindley Heath, Surrey, ex. larvae. *Synanthedon vespiformis* (Yellow-legged clearwing) from Dormandland, Surrey, ex. larvae. *Synanthedon culiciformis* (Large red-belted clearwing) from Bartlett Heath, Hampshire, ex. larvae. *Euchromius ocellea* from Portland, Dorset. *Crambus uliginosellus* from Hoathfield Bog, Kent. *Catoptria margaritella* from Dinas, near. Harlech, Gwynedd. *Eudonia alpina* from Meal-nan-Tarmachan, Tayside. *Eudonia truncicolella* from Dinas, near. Harlech, Gwynedd. *Eudonia delunella* from New Forest, Hampshire and Hendre, Gwynedd. *Evergestis extimalis* from Stone, Kent. *Pyrausta cingulata* from Ardnamurchan Point, Strathclyde. *Sitochroa palealis* from Stone, Kent, Hayling Island, Hants and Stonelees, Kent. *Anania funebris* from Orlestone Forest, Kent. *Udea fulvalis* from Studland, Dorset. *Agrotera nemoralis* from Blean, Kent. *Aglossa pinguinalis* (Large tabby) from Great Orme Head, Llandudno, Gwynedd. *Galleria mellonella* (Wax moth) from Hounslow, Middlesex and Horley, Surrey, ex. pupae. *Acrobasis tumidana* from Pagham, Sussex. *Epischnia bankesiella* from Portland, Dorset, ex. larvae. *Hypochalcia ahenella* from Portland, Dorset. *Gymnancyla canella* from Theddlethorp, Lincs., ex. larvae. *Ancylosis oblitella* from Mersea Island and Chelmsford, Essex. *Euzophera cinerosella* from Portland, Dorset, ex. larvae. *Apomyelois bistriatella* from New Forest, Hampshire, ex. larvae, and Garden North Cheam, Surrey, M/V. *Platyptilia ochrodactyla* from Leatherhead, Surrey, ex. larvae. *Stenoptilia zophodactylus* from Dungeness, Kent. *Pselnophorus heterodactyla* from Cranham Wood, Gloucestershire, ex. larvae. *Aricia artaxerxes* ssp. *salmacis* Steph. Northern brown argus from Arnside Knot, Cumbria. *Cyclophora pendularia* (Dingy mocha) from Studland, Dorset. *Thalera fimbrialis* (Sussex emerald) from Dungeness, Kent. *Idaea degeneraria* Portland ribbon wave, from Portland, Dorset. *Catarhoe rubidata* (Ruddy carpet) from Ham Fen and Stonelees, Kent. *Plemyria rubiginata* (Blue-bordered carpet) from gardens in Chelmsford, Essex and North Cheam, Surrey. *Epirrita filigrammaria* Small autumnal moth, from Easingwold, Yorkshire. *Eupithecia millefoliata* (Yarrow pug) from Sittingbourne, Kent, ex. larvae. *Eupithecia phoeniceata* (Cypress pug) from Pagham, Sussex. *Cleora* *cinctaria* (Ringed carpet) from New Forest, Hampshire. *Eilema sericea* (Northern footman) from Dinas, near. Harlech, Gwynedd. *Hadena caesia* (The Grey) from Ardnamurchan Point, Strathclyde. *Egira conspicillaris* (Silver cloud) from Kynaston, Hereford and Worcester. *Mythimna loreyi* (The cosmopolitan) from Pagham, Sussex. *Apamea oblonga* (Crescent striped) from Stoke Saltings, Kent. *Hydraecia osseola hucherardi* (Marshmellow moth) from Burham, Chatham, Kent.

R.F. McCormick (3375). Some interesting vars. collected this year.

Scoparia subfusca brown form. From Wychwood, Oxfordshire. *Philudoria potatoria* form *bicolor,* (Drinker moth) from Stonelees, Kent. *Lampropteryx otregiata* (Devon carpet) highlighted central band, from Dinas, near Harlech. *Lomaspilis marginata* (Clouded border) very pale form, from Ham Fen, Kent and narrow band form, from Mitcham Common, Surrey. *Dasychira pudibunda* (Pale tussock) blacker than usual var. from Wychwood, Oxfordshire. *Euproctis similis* (Yellow tail) extra spot on forewing, from Hendre, Gwynedd. *Lacanobia oleracea* (Bright-line brown-eye) elongated brown eye, from Pagham, Sussex.

David Oram (7127).

Two water bugs were shown, one was the Common backswimmer *Notonecta glauca*; adult and nymph shown, the other was the Water boatman, *Corixa punctata;* two adults were shown. Some brief notes accompanied the specimens showing differences and how they are often confused, both incorrectly being called water boatmen.

Also exhibited were some butterflies of Venezuela caught during the dry season in April 1992, from three main areas; Caracas (Coastal), Puerto Ayacucho (Amazonas) and Chuao (Coastal). A Brassolid species first seen as a larva pupated and emerged some four weeks after being found. The pupa and larval skin were also exhibited.

John Payne (5293).

A male Orange tip (*A. cardamines*) ab. *lasthenia* Mull. bred by Mr Paul Batty of South Yorks, March 1992. Temperature experiments on pupae which showed the Comma (*P. c-album*) ab. *suffusa*, an extreme form and the Small tortoiseshell (*A. urticae*) ab. *semiichnusiodes*. Also shown were the Yellow admiral bred around 1992 from New Zealand and a Red admiral aberration bred in 1990.

A.J. and C.T. Pickles (5225).

Microlepidoptera which showed *Udea fulvalis*. Further specimens from Highcliffe, Dorset (VC11) where it appears to be breeding. Exhibited for the late E.H. Wild. *Crambus pascuella* ab. *obscurellus* with type for comparison. *Apomyelois bistriatella* ssp. *neophanes*. A bred series from the New Forest and *Dioryctria schuetzeella* from the New Forest 25th July 1992; apparently a first record from here. Macrolepidoptera which showed *Acherontia atropos* (Deathshead hawk) found at rest on a wall in Lymington — 14th September

1992. *Hadena luteago* ssp. *barrettii* (Barrett's marbled coronet); the specimens were bred from *Silene maritima* roots found on Guernsey; specimens from Cornwall were shown for comparison. *Agrotis ripae* (Sand dart) bred from larvae found October 1991, on Guernsey. *Dasychira pudibunda* ab. *obscura* (Pale tussock) from Crabb Wood, Winchester. *Hydrelia flammeolaria* (Small yellow wave). Reference to ab. *confluens* from Crab Wood, Winchester. *Diarsia mendica* ssp. *orkneyensis* (Ingrailed clay). A series from Orkney. *Xanthorhoe munitata* (Red carpet) from Hoy, Orkney Isles. *Hypena obsitalis* (Bloxworth snout). Specimens bred from wild-caught larvae found on pellitory of the wall growing in South Devon in August 1992.

Tony Rouse (6572).

A selection of Lepidoptera caught in South-east Kent in 1992 *A.convolvuli* (Convolvulous hawk); one male and one female, the female laid eggs but these proved to be infertile. *R.sacraria* (the Vestal); several taken at light with at least three females which laid eggs. A second generation is being bred. *M. vitellina* (the Delicate); very common with the highest count being seven in one night at Dungeness. *P.unionalis;* captured from Dungeness. *M.albipuncta* (White point); fairly common early autumn but getting scarcer now — 3.10.92. *C.puppillaria* (Blair's mocha); one female captured 26.9.92 which laid about 60 eggs; moth is still alive and laying on 3.10.92.

P.J.C. Russell (8977).

Rhopalocera from Provence. Twenty-six species taken in the early spring (2nd to 14th April) were exhibited. These included the two Festoons *Zerynthia polyxena cassandra* and *Z.rumina* f. *medicaste;* the two Green hairstreaks *Callophrys rubi* and *C.avis;* the Morocco Orange tip and Common orange tip *Anthocharis belia euphenoides* and *A.cardamines;* the Green-underside and Black-eyed blues *Glaucopsyche alexis* and *G.melanops* and the Spring ringlet *Erebia epistygne*. The specimens of *Eurodryas aurinia provincialis* shown were taken as larvae.

Rhopalocera from Scandinavia. A selection of sixteen fritillaries (*Argynnini*) were shown including all those *Clossiana* species found in the artic region, i.e. *euphrosyne, selene, chariclea, freija, thore borealis, polaris, frigga* and *improba*. The two similar species of *Fabriciana, adippe* and *niobe* were included together with their unsilvered forms *cleodoxa* and *eris* respectively, both of which are rather uncommon in Scandinavia. Also shown were the arctic forms of *Boloria aquilonaris* and *Proclossiana eunomia ossiana* and the Lapland fritillary *Hypodryas iduna*.

From the Satyrinae (Browns) 15 species were shown, mainly from the arctic region. The most interesting were the three Graylings, *Oeneis norna, O. bore* and *O. jutta,* and the four Ringlets, *Erebia embla, E. disa, E. polaris* and *E. pandrose*. The three species of Wall browns, *Lasiommata megera, L. maera* and *L. petropolitana* were displayed for comparison. Also included were two Heaths, *Coenonympha tullia demophile* from the arctic and *C. hero* from the dry habitats of Central Sweden which differ very greatly from the wet habitat of this latter species in Central Europe.

Bernard Skinner (2470). British Microlepidoptera.

A selection of species of Pyralidae taken or bred during 1990 to 1992 which included a specimen of *Elophila nympheata* with reduced wing markings taken in the New Forest, Hampshire on 15.6.92, and a strongly banded specimen of *Hypochalcia ahenella* from Addington, Surrey, taken on 31.5.92.

British Macrolepidoptera. Three specimens of *Hyles lineata livornica* (Striped hawkmoth) from Swanage, Dorset in May 1992. Three specimens of *Eublemma ostrina* (Purple marbled) from Swanage, Dorset on 14.5.92. The fourth record of *Heliothis nubigera* Eastern bordered straw from Swanage, Dorset on 14.5.92.

B. Skinner (2470) **and B. Elliott** (2792).

A series of *Eublemma ostrina* (Purple marbled) bred from larvae and pupae found in the flower heads of Carline thistle in the Burren, Co. Clare and on Inisheer, Aran Islands, Co. Galway during August 1992 — illustrated with photographs showing larvae, pupae and habitat.

St. Ivo Entomological and Natural History Society, Mr H. Berman (2941).

The usual excellent exhibit showing the menagerie that this group of children have kept over the years, including the annual attraction of Boas and Pythons plus all things furry and scaly. The School put on the exhibit despite the fact that they suffered a fire at the establishment.

G.R. Smith (4950).

The exhibit was in two parts; firstly a display of mostly reared specimens of British Lepidoptera during the 1992 season, including Clouded yellows (*Colias croceus*) reared from a female f. *helice* taken at Churston, South Devon; the proportion of resulting f. *helice* offspring was documented. An undersize Common blue (*Polyommatus icarus*), which was the result of rearing the larvae on horse-shoe vetch; unusual Duke of Burgundy fritillaries (*Hamearis lucina*) obtained from eggs laid by an aberrant female from West Wiltshire; a Pearl-bordered fritillary (*Clossiana euphrosyne*) of the ab. *tatrica* type taken in South Wiltshire; a typical specimen was included for comparison. A dwarf Large heath (*Coenonympha tullia* ssp. *davus*) taken in North Wales; second generation Clouded buff moths (*Diacrisia sannio*) reared from a Cumbrian female and a Four-dotted footman (*Cybosia mesomella*) reared from a larva found in South Wiltshire.

The second part of the exhibit comprised four photographs, all taken during July 1992. These showed two Silver-washed fritillaries (*Argynnis paphia* f. *valesina*) close by on the same bramble bush in a West Wiltshire wood; a male Purple Emperor (*Apatura iris*) feeding on a half peach at the Bentley Wood Reserve near Salisbury; a White Admiral (*Ladoga camilla*) attracted to a rotting pot of fish paste at the same location and a Jersey tiger moth (*Callimorpha quadripunctaria*) on hemp blooms in South Devon.

Matthew Smith (5866).

Male specimen of the Carpenter bee *Xylocopa violacea* taken at Leigh Delamore services on the M4. This species is recorded as an occasional vagrant to Britain; this very fresh specimen was taken in early March and probably arrived in this country on board a container lorry.

David Stokes (7630).

The exhibit consisted of a male Wood white ab. *brunneomaculata,* a female Common blue ab. *caerulea,* a male Duke of Burgundy fritillary ab. *leucodes* and female Small coppers abs. *radiata* and *caeruleopunctata.*

Alan Stubbs (6481).

Hoverfly migration profile in 1992. Analysis of the numbers of *Episyrphus batteatus* and *Syrphus ribesii* in his Peterborough garden displayed three surges in numbers of the first species and two surges of the second. *Episyrphus batteatus* peaked on 16th August with 537 counted on one lap of the garden, and then crashed in numbers the next day indicating that the major migration front had moved across the area.

Peter Tebbutt (7941).

A selection of butterfly aberrations taken or bred in recent years mainly from Northamptonshire. The specimens include Wood white ab. *brunneomaculata,* a pair of spring and summer brood for comparison. Brimstone ab. *centriconjuncta,* Comma ab. *obscura* and Ringlet abs. *parvipunctata* and *areta.* All of these were reared from small numbers of eggs of larvae collected so that the early life cycle could be photographed. Wild-caught specimens include Common blue abs. *radiata* and *antiradiata,* Small tortoiseshell abs. *flavotessellata* and *dannenbergi,* Speckled wood ab. *saturatior* and Ringlet ab. *chrysopharis* with a typcial specimen shown for comparsion.

Raymond Thompson (9301). Assisted by Kay Medlock.

A very attractive and professional exhibit was mounted on behalf of The British Dragonfly Society. Videos on show were of Dragonflies and other insects in the UK, Camargue, Costa Rica and Okavango. Delta Microscopy was used to make a video showing butterfly and moth eggs hatching and the larvae undergoing ecdysis. These and a series of excellent photographic slides by Kay Medlock, shown on an automatic viewer, delighted a constant stream of interested visitors to the stand. Literature was also available for anyone interested.

Clive Turner (7709).

African Microlepidoptera captured in Tanzania in the summer of 1991.

Paul Waring (4220) **and David Sheppard** (4205).

A combined English Nature and Joint Nature Conservation Committee exhibit showed a display of sample maps and text for the forthcoming publication *"Atlas of Britain's rarer Macro-Moths".* A brief illustrated talk on the subject was given in the afternoon in The Winners Bar by Paul Waring.

Paul Waring (4220).

Some interesting moths recorded in the Peterborough area in 1992. Orange footman (*Eilema sororcula*) Castor Hanglands, Northants, 29th May, captured in a Robinson trap. Vagrant or resident? This is the first and only record of this species from this site in recent years, in spite of much recorded activity.

Bordered straw (*Heliothis peltigera*) Werrington, Peterborough, night of 29/30th July 1992, captured in garden Robinson trap during a period of much migrant activity locally.

Four-spotted moth (*Tyta luctuosa*) Werrington, Peterborough, adults 23rd May to 21st June 1992 by day, larvae by night on 1st July 1992, a large and extensive colony discovered. See full story in *British Wildlife* **3 (6)**: 374-375.

Oak Eggar (*Lasiocampa quercus*) Werrington, Peterborough. In 1991 a single female was captured in the garden Robinson trap, followed by two more females on 21st and 28th July 1992. On 4th August 1992 two wild males assembled to a virgin female bred for this purpose.The few recent records of this species in the area are to be published in a future issue of *The British Journal of Entomology and Natural History*.

Other local records of interest are Red swordgrass (*Xylena vetusta*) taken at light by Malcolm Hillier at Castor Hanglands on 28th February 1992, a Marbled clover (*Heliothis viriplaca*) captured by Peter Kirby in an actinic trap at Bretton, Peterborough on 29th June 1992, a male Red-belted clearwing (*Synanthedon myopiformis*) recorded by Alan Stubbs near two large apple trees in his garden in the centre of Peterborough on 2nd August 1992 and a Striped hawk (*Hyles livornica*) at Castor Hanglands, Northants., 22nd May 1992, captured in a Robinson trap operated by C. Gardiner, M. Hillier, P. Waring and other members of the Peterborough recording group in a glade within the woodland. This was one of a number of records of this species in Britain between 14th May and the end of May 1992, indicating a considerable influx. P. Waring recorded another hovering around in his Robinson trap near Shalfleet, Isle of Wight, at 00.15 hours on 28th May 1992. This specimen was included in the exhibit.

David Veevers (8910J) **Winner of the Ansorge Award for the best junior Exhibit.**

A display of British Orthoptera, which included photographs, sketches and drawings as well as living specimens of Wood crickets (*Nemobius sylvestris*), House crickets (*Acheta domesticus*), Great green bush-crickets (*Tettigonia viridissima*), Dark bush-crickets (*Pholidoptera griseoaptera*), and a British stick insect, as well as "pets" which included Hermit crabs, Giant land snails, Millipedes, Cave-crickets, Jungle nymphs and other stick insects.

Yorkshire Museum

An account of its Entomological collections and facilities:—

The Herbert Willoughby Ellis (1869 - 1943) Coleoptera Collection

The H.W. Ellis Coleoptera collection was purchased by the Yorkshire Museum in 1945 and, with the exception of honorary work carried out by the late W.D. Hincks, no curatorial work has taken place since. In 1991 work started to bring the collection up to date. The results of that work can now be seen in the accompanying drawers — one showing the "before" and the other "after" renovation.

The collection is already being used by coleopterists but, upon completion, it is envisaged that it will be put to far greater use by specialists and non-specialists alike. When complete the estimated 80,000+ specimens will form one of the most up-to-date working collections of Coleoptera in the North of England.

The Percy Scrimshaw Collection

The presence of a full-time entomologist at the Yorkshire Museum has attracted the attentions of fellow entomologists. Work has now started on the Percy Scrimshaw Diptera collection and the two drawers on display show the work so far carried out.

The Hiroyuki Ukawa Butterfly Collection

The presentation of 150 Japanese butterflies by Mr Hiroyuki Ukawa in May of this year greatly enhanced the Yorkshire Museum's holdings of butterfly species. Contained within the ten drawers are 150 of the 250 or so species to be found in Japan. What makes this collection unique is that all specimens contain full collecting data — albeit in Japanese! Several sub-species of British species are represented in the collection and these will be used for sub-specific studies. Mr Ukawa's promise to supply the other 100 or so missing has left us waiting in eager anticipation.

The Yorkshire Museum's insect collections were mainly acquired during the 1950s and 1960s. Unfortunately no systematic work has been carried out since this time and the collections have remained dormant and unused. At the beginning of 1991, however, a full-time entomologist was employed to bring the H.W. Ellis collection of Coleoptera up to date.

Anybody wishing to use the Coleoptera or other insect collections held at the museum is invited to contact Mike Denton, Yorkshire Museum, Museum Gardens, York YO1 2DR. Telephone 0904 629745

David Young (5547). Interesting Moths from various localities.

Transparent burnet (*Zygaena purpuralis caledonensis*) from Isle of Skye, June 1992 showing little sign of any significant variation in the colonies. Narrow-bordered 5-spot burnet (*Z. lonicerae jocelynae*) from Isle of Skye, June 1992 where it was common but local. Scotch burnet (*Z. exulans subochracea*) from near Braemar, Aberdeenshire, 5th July 1992. Five-spot burnet (*Z. trifolii palustrella*) from Hackhurst Down, Surrey in May 1992 where there were some confluent forms in a small but strong colony. Large thorn (*Ennomos autumnaria*), a series bred fron Dungeness caught female 21st September 1991. Belted beauty (*Lycia zonaria britannica*) bred from larvae collected on Isle of

Iona where they were extremely common but showing signs of disease. Black arches (*Lymantria monacha*), part of a series, the males mostly typical, the females showing marked melanism, bred from typical female taken at Bucklebury in August 1991. Heart moth (*Dicycla oo*), the first example for eight years taken at Burghfield Common, Berkshire in garden MV trap on 26th June 1992. Scarce bordered straw (*Heliothis armigera*), a scarce migrant taken 8th August 1992 also at Burghfield Common. Sand dart (*Agrotis ripae*), a series taken at Sandy Point, Hayling Island at MV on 31st May 1992. *Myrmecozela ochraceella,* an interesting local micro where it was recorded from eight out of fourteen wood ant nests, which it inhabits, at Morrone NNR, Braemar, Aberdeenshire. These were in open woodland and none were found in dense pine woods the side of Braemar.

WHAT MAKES AN ENTOMOLOGIST?

by Mrs Lesley Swinton (9079)

Wood of Auchleand, Newton Stewart, Wigtownshire DG8 6BL

Some years ago now, when I had only a general interest in butterflies and moths, I was having my tea late one evening when I noticed a very large moth fluttering up the window. Investigation with the aid of a torch and a very old book on insects identified it as a female Emperor. Next morning I was suprised and intrigued to find the silly female (no comment about females from you men there please) had laid her eggs on the back door frame with not a tree or bush within 100 yards!

I carefully protected these eggs from harm with a plastic cover and frankly was very surprised when they hatched. By now I was really fascinated and at this point had to make a decision. Should I become foster mother to a lot of small black caterpillars, or should I be an AMATEUR ENTOMOLOGIST? Well, I ask you, which would you have chosen.

I frequently think of that female moth who was, perhaps, not so stupid, for all her offspring survived to fly! She started me on a hobby that has given me years of pleasure and although my time is now limited, I still like to rear a few Emperors and Hawks each year.

Now for a QUERY. Last year I was about to dash off to work one afternoon when I realised that I had not made up any syrup for the four Large elephant hawkmoths I was hoping to breed from. I was not due back home until late. In desperation I grabbed a very ripe Victoria plum, split it and squeezed it to start the juice flowing, and put the moths onto it. Two started to feed immediately and as breeding was successful and the moths lived for some time, I presume fruit juice was quite acceptable to them. Has anyone else tried fruit and if so, what sort and with which species? [Used quite commonly, both as a bait in the tropics and I have seen it being used in the Butterfly Houses to feed their stock — Editor.]

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The Society maintains a library and collections at its headquarters at Dinton Pastures, which is open to BENHS members at various times each fortnight. Frequent field meetings are held at weekends in the summer. *Visitors are welcome at all meetings.*

The current programme card can be had on application to: the Secretary: R.F. McCormick, 125 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UP. The Society publishes *British Journal of Entomology and Natural History*, a quarterly journal of entomological articles, short communications, meeting reports, book reviews, etc., totalling 192 pages plus 4 colour plates per year. The Journal is free to BENHS members.

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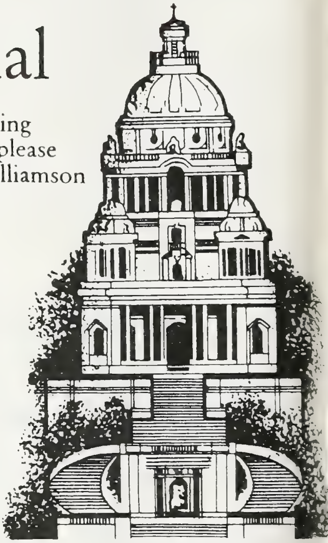

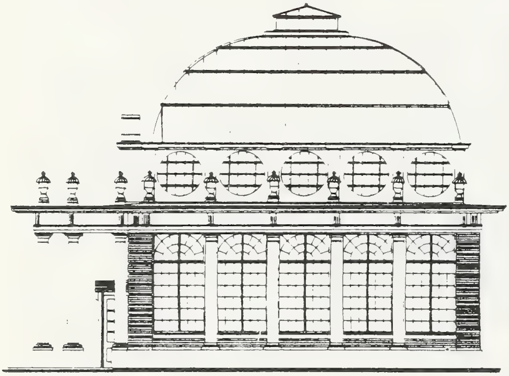

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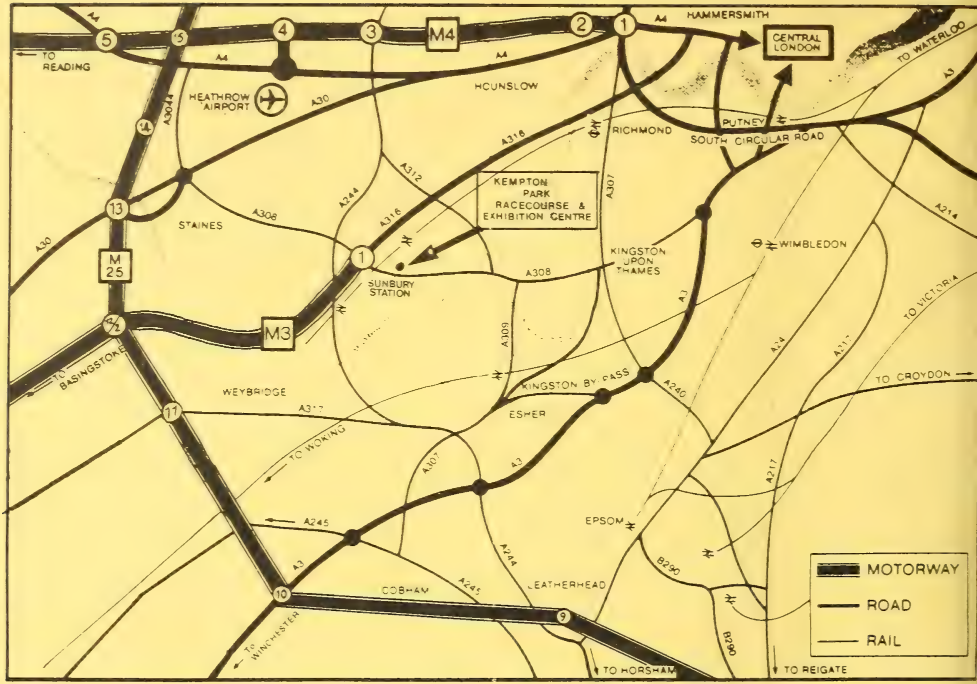
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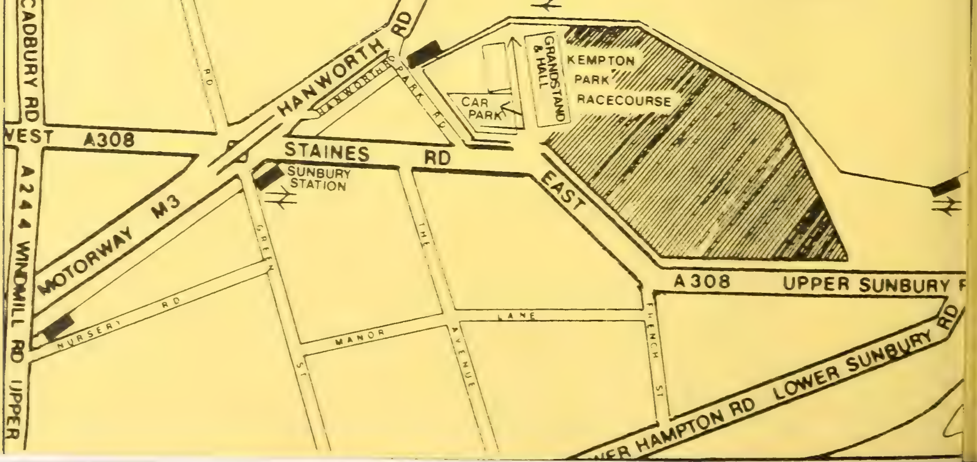
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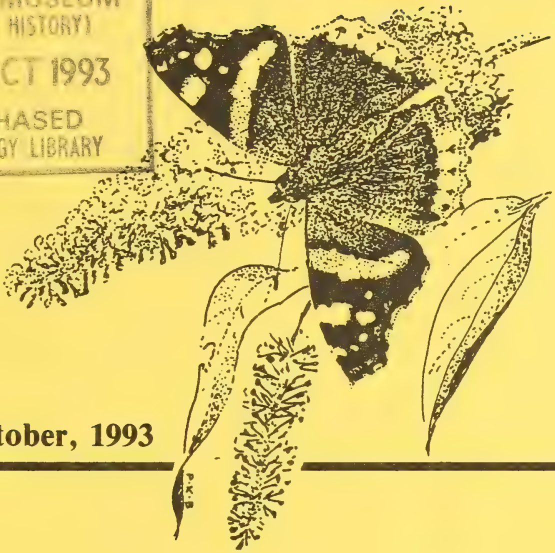

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The Bulletin of the Amateur Entomologists' Society

EDITOR
BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

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DOWN THE TUAK ROAD

by Leigh Plester (2968)

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(Continued from Vol. 52, page 16)

Major box office attractions, and even wildlife films made by the BBC or Biofilm (Oops, that's my own company!) tend to give the impression that the rainforest is an awfully noisy place. That's because the editors won't accept silence in a sound film. So as soon as the fruity voiced narrator has uttered his bit of blurb, the sound mixers turn up the volume, usually using a medley of jungle sounds that have been collected (or sometimes not, in the case of the Hollywood epics) locally. The fact is that the jungle by day is a very quiet place and it is only when the sun goes down that contingents of frogs, garrisons of crickets, platoons of bush crickets, and the occasional love-sick mammal all strike up. Various hoots, honks, trills, whistles, and chirps are all used by male animals to warn others of the same sex that they are defending a bit of Mother Earth, and at the same time to attract a virgin female. Go anywhere near a town like Kapit at night and the honks and hoots of jungle creatures become twangs, bongs and blood-curdling screams as some neolithic pop singer on tape tries to put the ladies in the right mood for you — only to send you scampering out of his electronic territory for fear of punctured eardrums.

By daylight, up the Rajang the only sound is that of the bow wave swishing up the low sides of the boat, and sometimes into your lap, if the boatman happens to be poling you along. In deeper water there is the boom of his beloved outsize outboard motor to stop you drifting off to sleep and to envelop you in blue clouds of pungent smoke when the craft stops.

Stepping out of the Kapit Longhouse Hotel for the first time I literally bumped into Oyam who, with the help of Stephen's broad knowledge of languages, became our Kapit boatman. Oyam was an Iban, a race whom — having subsequently lived with part of it for a time — I hold in the highest esteem. Not only do people like Oyam propel you about, astounding you with their knowledge of the river, its currents and obstructions, but they also form liaison officers between you and the headmen, or *Tuai rumah,* of the longhouses that represent the Iban civilisation in the rainforest.

Oyam took us upriver, crossing the Rajang to avoid rocks that were invisible to us, planing along where trees dipped into the water, white arrow-prow against the orange stain of erosion due to timber extraction as we sped along after rain, slowing down as though by instinct as soon as I produced a camera, though he could not have known much about photography. In his red shirt and blue jeans he was a first class fellow, his Elvis hairstyle and drooping fag perhaps not quite the epitome of the traditional Iban who used to take their foes' heads, not because they were "savages", but because it proved their prowess in war. With some of those lovely brown-skinned, -limbed and -chested Iban girls whom I ogled in the longhouses awaiting these warriors — no wonder. Would today's maidens settle for a politician's head? I mused; after all politicians are almost human. But I'd get nowhere near the dusky maidens with my Memsahib sitting beind me in the boat, secure in the knowledge that she had long since claimed my own skull. And good luck to her, thought I; the thing's as empty as a tramp's stomach.

It is one thing to see a film of rainforest trees forming a delightful canopy over the river as a television camera looks up from a boat gliding along on the still water, and another to actually be there. It is an incredible sensation, perhaps a little like rapturously gazing up as you drive along an English country lane through leafy oaks in summer — just before another car appears round a sharp bend and you pass on to an even higher plane.

Tally-ho!, thought I, down the Baleh as far as the turn-off to *Papilio paris,* with flicker mimes of trees in undulating float-by water, the long craft turning like a dark splinter into the imperceptible current, taking us to the very hub of our existence . . . it was impossible not to be mesmerised by the heat and the slow yawing of Oyam's boat.

For all our speed, the huge black and moss-green swallowtails that have been named *P. paris* easily overtook us, looming like diurnal bats, quick turn, glimpse of green pools on hindwings, dodge down, hesitate, then plane away over the bank into a clearing in the jungle — and no, I ne'er did catch the one.

Gliding down a tributary, we tied up at a small wharf from which a fleet of steps led upwards to a longhouse. After the usual greetings had been exchanged, a little *tuak* was drunk, cigarettes dispensed via the good-natured Tuai rumah — who had a squint and who could thus keep an eye on both past and present — and our honourable intentions were discussed (Oyam came from thereabouts and was thus able to introduce us as friends). Lovely, fully clothed Iban girls smiled shyly at us as old women went past thinking their own thoughts, their exposed breasts like Victorian razor strops. From the longhouse roof depended a bevy of skulls hung together in a net, their clay-filled eye sockets gazing balefully down at us. Presumably these were victims of the British "bob a knob campaign" against the Japs during the second world war. Perhaps they were our long lost kin. The *tuak* was a bit yeasty; possibly they had brewed it in the skulls.

After we had duly, and willingly, bowed to Iban convention, we started the perilous business of filming. A pig lounge-lazing in mud beneath an outhouse on stilts attracted us — with a pheromone that must have taken years of wallowing in filth and dung to work up — to a Common bluebottle which was cheerfully imbibing fluid from the pig's wallow.

So what? you think. Well, the Common bluebottle is neither fly nor copper, but the local name for the swallowtail *Graphium sarpedon*. This is a tail-less species marked in pretty patterns of pale green and brown, with some red spotting on the hindwing underside. He stood delicately on his long legs, juddering slightly as though in the throes of some primitive passion, just out of reach of my 16-100mm zoom and its close-up lens. By stooping I could just about squeeze under the outhouse and at length I had my tripod set up within range. As soon as I attached the heavy camera the tripod did the splits in three dimensions and I narrowly saved the caboodle from coming to a malodorous end.

Disturbed, the butterfly leapt into the air. I wiped sweat from my brow and withdrew, only to return a moment later as the sprite leapt back into vision, whirled, settled and tucked his proboscis back into the goo. I got my close-up shots but my nose dropped off due to the pong. Can I claim on my travel insurance? I wondered, as I withdrew.

While I had been engaged in the act of committing events to celluloid, Nick, Stephen, Raija and Seija had been exploring. "I've got you a spider as flat as a pancake on a tree trunk," announced Nick in his urbane fashion. "There are honey bees in weird hives outside some of the outhouses," said Seija and my Memsahib in unison. "Leigh, come down to the beach quickly," urged Stephen. "I need my sun-downer," I complained. The spider was duly filmed and then I found an assasin bug laying eggs on the same trunk and filmed her, too. "How can you allow your husband to film such dangerous creatures?" asked Seija of the Memsahib. I gave her a withering look. "If you dink *dis* is dangerous, dick your dose down dear dat green ad brown butterfly,'' I said, desperately screwing my olfactories back in place.

The Heath Robinson bee hives, turning gently in the breeze, were filmed, as well as some of the bees in close-up. Once again, I learned one of the basic principles of the jungle, this time that of the White Borneo Distance-seeker: if you crave peace, film something dangerous or smelly and your human companions will give you a wide berth. If they persist in bothering you, nod sagely and tell them that this is the species that stung Cleopatra's asp. If they still persist, offer them a beer and then hand them a krait — one of Borneo's truly lethal snakes.

It was down on the beach that the principle of the White Borneo Distance-seeker, Stage One, was most forcibly brought out. The beach, on which one or two local longboats were also drawn up, was the place to which Iban from the longhouse generally went to wash themselves and their clothes. Evil-looking tiger beetles with legs three times the length of their European relatives ran about on it, their bodies well away from a hot surface that made it impossible for Borneo Distance-seekers to walk barefoot. Butterflies flashed by, turned and came back to imbibe sweat from such insignificant water holes as the strap on my camera battery and even the metal tripod.

I needed some shots of the circus-act tiger beetles on their stilts so I snuggled down into the sand with my Bolex and a zoom plus close-up lens, pushing my cheek hard against the hot camera. Noxious fumes tickled my nostrils, crystallising therein. A Formula One ''tiger'' flashed past and I missed it. Another hove into view, just out of focus. A third moved in so fast that he was out of range before I could turn the focusing ring or curse. The pong from the sand became unbearable. I shifted position, dug the Bolex deep down into the sand in a new place and through the viewfinger watched a couple more beetles waltz in and out of filming range. A yellow fug obscured the next.

Beetle number seven, obviously a mutant of ill repute, did a splendid can-can right in front of the camera. Five seconds, and then the print of the shot turns red because film ran out. The editor finally put together a few of the pieces that I offered her and the high-kicking *Cicindela* were subsequently shown doing their little bit on Finnish television. With a fresh roll of film in the camera, I pushed the apparatus back down into the sand and watched a sort of miniature sarcophagus rise slowly out of the substratum. It was obviously very fresh — I was lying in the village dogs' loo.

While at Kapit I had put my warped AES mind to work and, at great financial sacrifice, mixed a litre of local brandy with shredded pineapple in a diabolical brew guaranteed to de-scale Borneo Lepidoptera to such an extent that they would henceforth be known simply as ''Borneo

Optera''. In its white and red plastic container this potion looked like the sort of Father Christmas who turns out to be a butterfly molester. Its purpose was to attract the rarer nymphalids and birdwings of the Sarawak rainforest. Accordingly it was placed in a convenient spot on Dog's Loo Beach where it was later found to be missing. Half-an-hour afterwards someone cottoned on to the culprit; it was the very same pig that had wallowed under the outhouse where my nose had called it a day.

Surrounded by human flotsam, the brew thief stood near the longhouse, backdropped by the thinned jungle, gazing belligerently at us, the festive container clamped possessively between its yellowed teeth. I rubbed my hands together with glee when I noted the animal was not only a swine but also decidedly rotten. Mud-stained, its staggering body soon melted away into the bush to (as Moorhouse so wonderfully put it) ``awaken to heaven knows what sort of a primaeval hangover in the morning''. I myself couldn't help feeling that a kick in the kidneys might have sobered it up.

There is a longhouse near Kapit known as *Rumah Tuai,* which is painted blue and to which we went one day because some of the Jabatan Pertanian (Dept of Agriculture) lads had flown over from Kuching to do part of the Cocoa moth survey there and, well, why not go along anyway? We actually filmed some Iban *pua kumbu* textiles in the making, as well as children, cats and chickens in the longhouse yard, — and, as Nick would say (and he should know), it was ``all very pleasant''. The Jabatan lads finished their task by midday, the Iban were itching for a Tuak Contest, and in any case it was Friday. Since it is the custom to remove one's footwear before entering a longhouse, I always have a problem with my Malay army jungle boots, which are calf-length and laced up to their tops like a Victorian bodice. It takes me almost half an hour to get the things off, by which time the Iban and their guests are already well into the next century and second-best *tuak* is being drunk.

This time, the word was passed to the *Turai rumah* that the ``peculiar guest with the jungle boots and kite-shaped mosquito net who seems to prefer our children's company to ours'' (loose translation) excused himself effusively from the celebrations on the grounds that he had to work for the government. This was the gambit which turned out to be acceptable to these people settled in a government longhouse, but which would not have worked far upriver, where vistor etiquette is of paramount importance. Upriver you sit, smile, and get stinking *tuaked.*

Most of my filming over, I suddenly noticed that half of the longhouse children were indeed standing at a discreet distance behind me, regarding my efforts at catching flutterbies by means of the weird Bolex ``trap'' with the unwinking scorn of the jungle-born. Gales of laughter swept out of the unglazed longhouse windows and a woman began to sing. A waft of *tuak* assailed my nostrils. Those in power were already far gone. I took a swig of boiled water, reheated by Borneo, and turned to the children, the sane. "There go good one!" I cried, "Me go fetchee nettee quickie!" A black and lemon swallowtail, heading disastrously for a chicken wire fence, bowled into view. Sombre juvenile faces greeted my remark, while explosive grown-up laughter from the longhouse threatened to blow the roof off. The swallowtail — a *Papilio demolion* — by a miracle emerged from the far side of the chicken compound without looking like a packet of burned potato crisps, wall-of-deathed up the blue woodwork, to vanish into Inner Sarawak. "Too fast," I remarked, as they stared at me, watching fascinated as I stroked my beard. I recalled that I had had longhouse children run screaming at the sight of my fizzog (I once asked Nick if Iban children thought I was a werewolf and he told me to shut up and comb my face).

One boy, bolder than the rest, now produced a catapult. He waved it menacingly, but I need not have feared. He grinned and they cleared off as a mob. It would have been peaceful then but for the fact that the longhouse seemed undecided whether to part asunder due to the celebrations or mummify for posterity, embalmed in *tuak*. The noise was hideous and I could hear Nick attaining nirvana. Five minutes later the children returned to the yard, the one with the "catty" smirking all over his face as he handed me a "specimen". I hefted this in my hand, guessing its weight, turning it over, peering at it, tweaking an antenna (I mean the antenna), and counting up to three legs. There was something familiar here . . . ah, and then I had it — the Common eggfly (*Hypolimnas bolina*), bashed by catapult! As evidenced by the fact that you could have caught a cod or a cold through the holes in it. The male eggfly in life is a dark butterfly with white pools on his wings surrounded by a lovely purple fluorescence; the white pools are presumably the "eggs", though one never knows with local names. I turned, palm-up eggfly, to the band of Iban children. "This," I told them authoritatively, "is a cross between Stilton cheese and a manure heap, known accordingly as the Common eggfly as consumed by one and all at breakfast." Although they did not speak English they were fluent in nod language. They nodded vigorously.

One vast disadvantage of the Kapit Longhouse Hotel, largely due to its unglazed windows, were the fighting cocks lining its facade. There were seven of them and I longed for their demise. At about four-thirty in the morning one would be awoken by the presumptuous hoot of the first express launches about to go downriver to Sibu. Forty winks later, somewhere in the eastern sky the sun would lose a ray to dawn and some sharp-eyed Kapit Longhouse hotel fighting cock would notice this and, disgruntled at having one of his legs tied to the hotel by string or creeper, would open his beak and crow as loudly as a member of the winning party on election day. Most entomologists seem to have a singular passion for insects and reptiles, so that disliking birds requires little effort from them — but the challenging crow of the thoroughbred Borneo fighting cock arouses a primitive emotion in me which can only be expunged by being in at the wretched bird's death.

May Day has been a national holiday in Finland for decades, so when an English fellow called Charters (*sic*), whom Nick had collected, told us that he had received word there was a *legal* cockfight in Kapit on that day, we put away the nets and cameras as an excuse for a holiday and went up to the compound. The atmosphere there was nothing like that experienced at the cockfight near Marudi where Nick and I filmed in 1989, because that was an *illegal* one, but as an introduction to the "sport" it was fine. Iban cockfights are characterised by a great deal of foreplay, with money being waved, bets taken, cigarettes smouldering side-lip eye-squint, the smoker the while fanning a fat wad of notes, the money men strutting and extorting, the chalked-up board, the women hangers-on a-clucking, the cocks tied to the outer perimeter of what is virtually a circus ring belligerently a-crow, the plucking of a feather or two from the neck as the birds face their opponent hand-held, the final skirmish, the fight to the death that lasts (I lie not) about ten seconds.

There were no insects about — at least I could not see anybody scratching — so the best part of the performance was when a half-dead cock, his razor-sharp 6cm long steel spur still striking his imaginary foe, took off into the crowd. I have never seen people move so fast, even in the tropics.

Once the cockchafers and bugs had been gathered up from under our hotel room lights, the Memsahib and I prepared ourselves for sleep the same night with bated breath — and then, hands a-tremble, I peered through the wrought ironwork "window" and counted the fighting cocks tied to the wall. Frass me! There were still seven of the beggars. All that blood and bated breath had been for nothing. The seven cocks crowed aeons before dawn and I never forgave the Iban for that, even when we met Watt Entaban.

Watt was the husband of Sarawak's only Finn, Kirsti née Suominen, to whom Nick now placed a call from his posh air-conditioned hotel. "She's going to fetch us in her car," he explained , "since they apparently live at the top of the hill out of town". I remembered that hill, owing to its connotations with monstrous cicadas lying on the road under street lamps and a scorpion that had almost claimed me in my prime. It turned out none of us had anything against the idea of organised transport and so, after the introductions had been made and surprise expressed that, of all places, Kirsti should come from our nearest city in Central Finland, the Memsahib and Seija piled into the jalopy and disappeared into the darkness, while Nick, Stephen and myself strolled slowly in its wake. We dawdled on the way, thrusting cicadas and huge hawkmoths into our plastic killing jar while trying to preserve as much of its cogent fumes as possible in the warmth of the tropical evening.

Soon headlamps blazed and Kirsti's car ground to a halt, did a thirty-point turn in the narrow road, and proceeded to engulf us. I settled back thankfully to enjoy the ride. A hundred metres further up, the engine coughed, spat twice and went quieter than a Rolls Royce. "Oh, I am out of petrol," said Kirsti cheerfully, opening her door. We all piled out again. "Are you not going to lock it?" enquired Stephen, mindful as always of the need to protect one's property against "these people" (all others except Sarawak Chinese). "No problem," said the lady and left the vehicle there in the middle of the road with its lights off. That the car survived this abandonment I myself was able to witness by riding in it the next year after the Entabans moved to Limbang. On that occasion Watt kept glancing at the fuel gauge, so it must have had a very sneaky petrol tank.

Before long we entered a house that had glass slats instead of windows, an open door, and the sort of floor over which your feet glide soundlessly — rather like the one in Dubai airport, which is a superb place to stop off at on a Far Eastern flight and to which I am going to retire to if I can afford a harem on hire purchase. Anyway, the house lights were on and the insects buzzed and danced about them. Watt came forward to greet us, short, slim, eyes-that-danced, Iban to the core, and with a lilting cadence to his voice that obviously was not picked up at the Canadian university he had gone to. He had less hair than I have, which is to say he resembled a marble statue that's been in a museum fire. I myself look like tumbleweed with a shell crater in its centre.

We sat down and passed half an hour in pleasant conversation as Kirsti brewed instant coffee which Watt skilfully replaced by soft drinks and, finally in a bizarre chemical reaction, converted to cold beer. The Entabans have four children and before long we were on that favourite topic of hot country conversation, snakes. One morning, Watt related, his youngest son came in and said "Daddy, there is a snake in my sand pit". Watt had covered the sand against a storm the previous evening and now hazarded a guess he had left a coil of rope lying under the tarpaulin. Upon raising the latter and finding himself looking into the glittering eyes of a fat cobra, he began to suspect he was wrong. Discretion, they say, is the better part of valour: the snake, obviously fed up with being assessed, slithered out of the sand pit and went on its way.

I was just thinking, beer-thought, what a fine family this was when providence took a turn. Out of the darkness an enormous Queen cicada slammed into the slats partially obscuring a window, ricochetted off, bowled into a light bulb which reacted by swinging wildly, and came down in a belly-landing right on Watt's polished, museum pate. Its threshing legs entangled themselves in our host's remaining wisps. Hardly pausing in what he was saying, Watt reached up, grabbed the offending creature round the waist, held it out to me and said *sotto voce*, as though addressing Dr Livingstone: "I believe this belongs to you."

All too soon we were on our way back down the Rajang and all too soon we were all standing in Kuching airport, loathing the sticky threads that like the glandular hairs of some global sundew were once more drawing us back to Europe. Piles of insect boxes littered the airport seats in our immediate vicinity and even Seija had a huge case of butterflies she had purchased. The pong was guaranteed, I speculated, to get us half an aeroplane to ourselves.

Then the MAS check-in wallah played silly beggars glancing scornfully at our filming permit and informing us so what, we were fifty kilos over the limit — a facet of information that was not new to us as Nick and I had brought more than that in excess baggage through *Moscow* airport by charming the little left-wing darlings at the check-in desk. I sniffed, flare-nostril, and for once in my life decided to behave like a colonialist Brit. "Look here," I said, "young man, er..." — and at that moment two young Dutch fellows we had shared a villa with in Bako National Park walked in. They almost had no luggage beyond a Chinese hat and a change of underwear.

"Look here," I repeated, "these are two of our film crew chappies and as you can see they are fully prepared to absorb the excess!" Generally Malay is spoken clearly, but this fellow muttered abominably.

The saddest part of all was having to bid farewell to Stephen. Throughout the five weeks, he had done so much for us — more, possibly, than friends do for one in a lifetime. Shaking hands seemed so inadequate. As I watched his slim body recede, whisper-of-feet, across the foyer, a Chinese proverb aptly stole to mind: To say goodbye is to die a little.

Some days after our return, I phoned Nick. "The Finnish Broadcasting Company wants us to go again. Lauri says he has no objection to our doing things properly this time: really losing our heads, as he put it."

"Count me in," said Nick, without a pause.
"Back to *tuak*, I said. "By the way, how is your scorpion?"
"It has gone a bit soft."
"A pity; makes sitting on it a bit difficult," I said.

THE SOLITARY WASP

Crabo cribrarius,
(Wasps can be various)
You're stilling your prey
For your nest.
In your brown black and gold
Your implacable hold
Means your nursery
Vies with the best.

On my red Fiesta
You take no siesta
But silently beaver away
Till your multiple eyes
View us with surprise
And you feel you can no longer stay.
You make for your larder
With vigour and ardour;
You'll tuck in your prey with a grin
And although we don't pet you
We'll not soon forget you
And we won't stick you down with a pin.

B.M. Williams

A PLEASANT BUTTERFLY HOUSE

by Frank Marples (8226)

I visited the Cumberland House Museum, and British Butterfly House, (Eastern Parade, Southsea, Portsmouth) for the first time, just recently. The Butterfly House is a timber-framed structure built onto the sunny, south-facing side of the old house, and it is a very pleasant greenhouse-like environment, with ample flowering plants, and free-flying insects.

"Perhaps I should have saved my honey sandwich until I got outside!"

I took particular notice of the devices used to attract the butterflies into more easily observable places. Upturned coffee-jar lids, each containing a coloured, plastic, household mesh pad, and a solution of honey and water — and to such good effect. The proboscis could penetrate the mesh, without the insect getting trapped in the sticky solution.

BOOK PRICES — LIBRARY AND OTHERWISE

We print below a letter received from member Keith Lewis, together with a reply from a librarian. It is our own view that books are priced according to what the seller thinks the market will bear and such prices often have little relationship to the rarity, or otherwise, or even the condition, of the book, but have more to do with the price the dealer had to pay for his stock in the first place. Libraries have been selling books now for over a century and most "ex-lib" books today are being re-circulated, not recently bought cheap from a library, and will have come into trade either by way of auction, or private sale from executors and often against keen competition. "Condition" of course also means having indelible library stamps on the pages and/or plates and as such *should* be considerably cheaper. This is certainly so in Cambridge for the general run of "ex-lib" books, many of which have now been "ex-lib" for many years and appreciated in value since they were originally sold by the library. Specialist and sought-after items will perhaps always command premium whatever their condition. Apart from local library sales the other places to watch for reasonably priced books are some of the numerous charity shops. (Editor)

Dear Editor,

I have for some time been concerned at the high prices that are being asked for books which are ex-library stock. Any member who, like myself, has attended a library book sale will know that many books may be obtained for a peppercorn sum.

I recently obtained *Chambers Dictionary of Science and Technology*, a £10 book, for 50p. I was therefore incensed when recently browsing through the book shops in London I found one volume of *South's Butterflies of the British Isles* at £25 and a copy of *Fowlers Coleoptera* at £125, both books bearing ex-library cancellation marks.

I therefore decided to write to my local library department for their view on this matter.

While I have found many secondhand bookshops behaving reasonably, there are a small minority who are cashing in on this source of supply. I would therefore advise all members to watch the notice boards or local press for future library book sales.

Please note that the views and policy as expressed by Mr J. Levett of the Bexley Libraries and Museums Department may be different in your local town or borough.

Keith C. Lewis (3680)

Dear Mr Lewis,

As a Public Library Service our function is to provide as effective a stock as possible for our users; this takes precedence over the sale of redundant material and is our main concern.

We have been selling our unrequired stock since 1982 and from the inception of the scheme were concerned to streamline the procedure. Each withdrawn item is examined by a professional librarian but, with approximately 50,000 books withdrawn per year, and limited staffing resources, it is not possible to individually check all items in order to establish current values. I believe that we broadly identify the majority of more valuable books and these are transfered to our reserve stock but occasionally, as you point out, valuable books may be released. To check all items acurately would, I feel, cost more in staff time than it would raise in income.

Our policy on charges is to realise as much income as possible while maintaining a steady and high volume of sales. This may result in some items being offered at too high a price or very occasionally at less than market value.

It was also decided in 1982 that books could not be reserved for the public to purchase when they were eventually withdrawn. This policy was adopted again in order to keep the procedure of withdrawal as straightforward as possible, to minimise costs and to allow the staff as much time as possible to concentrate on their main duties in our service points.

Yours sincerely,
J. Levett, *Assistant Stock Librarian, Bexley London Borough*

BORDERED STRAW ON LETTUCE

by Dave Rolfe (6572)

A few months ago I was making a salad and upon cutting into an "iceburg" lettuce I noticed some droppings. Further examination revealed the presence of a small larva which looked faintly familiar and so it was removed to a plastic box for further study. I browsed through all my moth books and finally found a photo of a caterpillar identical to my specimen; this turned out to be a photograph of the Scarce bordered straw (*Heliothis armigera*).

I continued to feed it lettuce and in due course it pupated, a couple of weeks later the moth emerged but failed to expand its wings. From what I can make out it does indeed seem to be *armigera*.

This must be a tough little beast as the lettuce had been in my refrigerator for the best part of a week and, the lettuce coming from Spain, was presumably kept chilled for considerably longer during shipment and storage. Incidentally, none of my books mention lettuce as a foodplant, most imported larvae seem to have been recorded on tomatoes. So all you salad-eaters out there, keep your eyes open!

VANESSID ACTIVITIES

by Terence R. Smithers (9447)

3 Farley Close, West Horsley, Surrey KT24 6NB

The summer of 1992 turned out to be a rather good one as regards my annual collecting trips for larvae of the Red admiral (*Vanessa atalanta*). This was not so much due to a large influx into this area, but more to my chance discovery of a perfect breeding site, allowing me to rear a good number for release in the early autumn.

At the beginning of August, I discovered during a local collecting trip a large bed of nettles at a disused airfield. The nettlebed was situated in a depression by the side and at the end of the old runway and covering approximately two acres.

It seems that Red admirals are particulary attracted to this area for it is a suntrap and becomes extremely hot in the summer sunshine, due to the fact that the steep sides surrounding act as an efficient windbreak. The whole area was one large mass of nettles at various stages of growth with an old concrete road dissecting it and running up to a small roundabout in the middle.

During the first weekend of August I collected over 100 larvae at various stages of growth, although I was soon to learn that collecting any early instar larvae resulted in nearly 100% parasitism at this particular site, to an ichneumon wasp (similar in appearance to *Apanteles glomeratus*) that I often saw flying around the nettles in search of a host. I also discovered during my search a larva of the Small tortoiseshell (*Aglais urticae*) suspended beneath a nettle leaf ready to pupate with a female *Pteromalus puparum* sitting patiently astride its helpless victim ready to inject its ova. I cursed the fact that in order to avoid carrying too much around with me on what was a very hot day I had decided to leave my camera at home.

Further searching revealed five more tortoiseshell pupae but all had fallen prey to this parasite.

The vast majority of *atalanta* larvae taken in their final instar proved to be parasite free and I marvelled that they had got to this stage at all considering the amount of parasite activity I encountered. Obviously those full grown larvae that I had overlooked would now be left to suffer the impending onslaught from *P. puparum* with predictable results.

Later that day I found a single *atalanta* pupa in a leaf tent that to my amazement had somehow avoided detection from the parasites.

The collected larvae were placed, in a shaded part of the garden, in a wooden framed cage 24 × 10 × 24 inches and, as already stated the last instar larvae were parasite free and pupated successfully but of the larvae in their early stages, all but a few succumbed to parasites, approximately 99% in fact. I ended up with 57 pupae, all but three of which produced healthy adults, 29 being released into the garden and the remaining 25 into my 10 × 6 × 7 foot aluminium greenhouse in an attempt to obtain a further generation.

After the first week of September had passed I decided to cut the number of occupants down to 18, so seven were duly released.

Much to my amazement the butterflies settled well into their new home and gave great pleasure in the way they would gracefully flutter and glide from one flower to another interspersed with what appeared to be courtship flights with two or three following one another up and down the length of the greenhouse.

The greenhouse benches were covered with trays of French marigolds, pots of *Buddleia davidii* of mixed colours and many *Sedum spectabilis* plus two dishes of blue and pink cotton wool wads soaked daily in a strong honey, fruit, sugar and water solution. This was often chosen above all else by the butterflies especially in the early morning as the greenhouse began to warm up. Nettles for ovipositing were provided growing in two large trays on the side benches and also growing naturally in the soil under the end bench.

No pairings were seen but during the last week of September two females began laying on the nettles in the trays. These however proved to be infertile. By this time the butterflies had decided they no longer enjoyed their confinement and proceeded to batter themselves relentlessly against the greenhouse netting in their attempts to escape. This was the behaviour I had expected from the beginning as these powerful Vanessids do not normally take well to confinement.

By the second week of October some of the butterflies had perished, leaving only nine and sensing failure I turned my attention over to preparing winter quarters for my overwintering fritillary ova and larvae.

During the first week of November whilst tidying up in the greenhouse I noticed that two of the remaining nine butterflies were still laying ova on the nettles; closer inspection revealed that a good number of these were changing colour to grey and were definitely fertile, in fact some were almost ready to hatch. A good number were removed and placed into plastic rearing boxes and taken indoors as a protection against possible frosts. At the time of writing (8th November 1992), I now have approximately 50 larvae in first and second instars and many more ova hatching on the nettles in the greenhouse.

The fact that the adults mated successfully so late in the autumn took me somewhat by surprise as I had been led to believe by other entomologists that the Red admiral was photoperiodically controlled as to its fertility, as is the case with the Painted lady (*Cynthia cardui*) which is said by some to require at least 16 daylight hours (Herman & Bennet 1975) or could it be the high temperatures achieved in greenhouse conditions on sunny autumn days can counteract the day length requirements? Or maybe with *atalanta* it is not the adult that is photoperiodically sensitive but the last instar larva.

If any other members could enlighten me as to what they know on this subject I should be very interested to hear their comments.

At this present time (8th November 1992) I have a futher six adults obtained from full grown larvae collected during mid-September. They have been on the wing for three and a half weeks with only natural lighting provided but no pairings have occurred as yet.

Whilst harvesting the ova from the nettles in the greenhouse I noticed a distinct difference between the fertile and infertile ova. The infertile ones are a darker green with a hint of blue, while on the other hand the fertile ones are slightly paler green with a glossy sheen to them. There was no discernible size difference between the two.

BOOK REVIEW

Keeping and Breeding Tarantulas by Ronald N. Baxter FRES, FZS, FLS. Chudleigh Publishing 1993, pp.xii + 92, with 4 monochrome plates, 32 colour plates and illustrations by Michael J. Roberts. ISBN 0 9519219 1 6 Price £8.95.

This "review" is actually carried out on page proofs read before the publication of the actual book. The reader will excuse, therefore, my not mentioning the quality of the monochrome plates — which I have not had a chance to see — but I can state this; if they are of the same quality and clarity as the colour plates, then they will be good indeed. The proofs also had certain spelling and grammatical mistakes, which should have disappeared by the time the book hits the shelves, and I will make no further comment on those here.

It is a reviewer's nature to "nitpick". What criticisms I have of this book fall principally under that category — nitpicking — and I would bring the reader's attention to that. This book is good, if the wider spectrum of the title is considered, with small improvements it could become great. If the title had been "Breeding Tarantulas", it would already be great, for its only weakness that I can detect is in some alternative kinds of housing, substrate and heating that have been excluded. However, as the author himself states, "I did not intend it to be a scientific work . . ." it was to have, "a special emphasis on breeding", and this is where the strength of this book lies.

Ronald Baxter has had nearly two decades of experience breeding Tarantulas. His writing of his notes is almost anecdotal at times and there is a feeling of deep commitment to his subject. This man is not only a breeder of Tarantulas. It comes across that he has a deep respect for these fantastic creatures and this is reflected in his writings.

I would have liked to have seen him mention the use of heating cables for "under-floor" heating of tanks, as an alternative to using lights, and also the use of vermiculite for substrates, as an alternative to peat. Vermiculite, in my experience, is far superior as a substrate for tanks. It is virtually inert and tends not to give as great a problem with mites, but there is no mention. Another major exclusion, in my opinion, is that of regularly spraying water into tanks to raise humidity. That said, it may well be that Mr Baxter has not used it, and as the book is primarily based on his own experience, there would be no need to mention it. If the book needs "beefing up", then it is in this area that it needs it. Indeed it is not a scientific treatise, but where a scientific word is used, it would be nice to have some kind of glossary at the back of the book to look it up. What, for instance, is chitin? There could be some that do not know!

Nitpicking apart, for anyone who is interested in breeding Tarantulas, this book is a must. Mr Baxter's experience is well known and respected in those circles. Indeed, I myself once had a Tarantula that he had captive bred, and it lived with me for several years. It is good that he has chosen to pass on his experience to those who know less. But what if you do not want to breed Tarantulas?

For the price of less than you would pay for a Tarantula itself, you can have some of the most beautiful photographs I have ever had the pleasure to view of these fascinating animals. The 32 colour plates, with only one exception of a Tarantula ready to moult, are thoroughly pleasing and aesthetically rewarding. They are worth the book price in themselves. They could be equalled, with much experience, but I doubt them being bettered.

Finally, Mr Baxter has included a section — one of ten neatly spliced chapters — on the different species and most commonly kept Tarantulas. The list is not definitive; however, the nomenclature and descriptions are up to date. It gives a wide choice for the potential Tarantula keeper.

Suffice to say, if I had my way, I would have this book sold to every "first time" Tarantula buyer. There is much to commend it, not just to the first time buyer, but also to those more experienced keepers. There is something in it for everyone. It would appear to be a labour of love and, to all those who love Tarantulas, or at least enjoy the thought of an affair with one, this book has its place on your bookshelf!

James Wright

JUNIOR SECTION No. 4

by Darren J. Mann (8181)

129 Clifford Bridge Road, Binley, Coventry, West Midlands CV3 2DX.

This Junior Section was meant to appear in the February *Bulletin*, but due to lack of material, I had to wait until the AES Junior fieldtrip to France write-up was ready before including it in this *Bulletin*.

This year we arranged two Fieldweeks; Sussex in May and Wales in July/August. We are also hoping to organise another trip abroad (if we dare) in 1994. If you would like details of any future field trips please write to me enclosing a stamped addressed envelope.

I would also like to take this opportunity to appeal to both juniors and non-juniors to write suitable articles for the Junior Section.

THE 1992 AES JUNIOR FIELDTRIP TO FRANCE

by Darren J. Mann (8181)

In the words of film idols of those that attended ''A most Excellent Adventure'', I cannot take any credit for the organisation of this trip, since it was Marianne ''Gran'' Battersby who sorted out all of the boring (at least to me) details that actually got us to France. I was responsible (dare I say it?) for the rabble of young and not so young entomologists laying a trail of swept, beaten and exhausted sites across France.

This trip certainly gave plenty of opportunity to experience new things. Before this trip I had never seen paper wasps, let alone been stung by one. Nor had I ever listened to so much Metalica (12 hours OK, over 20 hours it starts to affect you), nor had I ever swum in a river with fountains in the middle of it. I hope that all who attended learnt something, if not entomological, then at least the lyrics of one Metalica song.

Since we do not have enough juniors to cover each day of the trip, those days that would be ''missing'' have been filled in, briefly, by me, as follows.

When we arrived in France it looked pretty much like what we had just left over the Channel, apart from driving on the wrong side of the road and not understanding any of the signposts. I couldn't tell the difference — but then again — it was dark.

Our first campsite was at Bistarde, and as the name sounds, the site was. Anyway, our first trip out of the campsite proved to be quite successful, we walked along a small road and eventually came across a small area of waste ground. This site was covered with ragwort (Plate DD, Fig 2), with patches of bramble, willow and hogweed. We all dispersed to various parts of the site. Myself and Guy followed a path, well, what was once a path, and probably last used by the Romans. This took us to a small sandy area with a few sandy banks. This area appealed to Guy since there were plenty of wasp-type things buzzing about. After a few hours of collecting we had found several interesting insects, the most interesting find being a colony of the bee killer (*Philanthus triangulum*), which we watched bringing honey bees back to their nest holes. Other species of note included the bee chafer (*Trichius fasciatus*) (Plate FF, Fig. 7), which we found on the flower heads of hogweed and thistle, the longhorn beetle *Leptura rubra* and the short-winged conehead *Conocephalus dorsalis*.

After a late start the next day we travelled to Vironchaux, where we found a suitable campsite. Unfortunately the surrounding area was predominantly arable farmland and so lacked suitable collecting sites. So, in search of insects, we ventured along the roads and collected along the verges. Although this was not the most productive of days we did find the Colorado beetle (*Leptinotarsa decemlineata*) and a red and black bug (*Corizus hyoscyami*) and the rufous grasshopper (*Gomphocerippus rufus*).

On Wednesday 29th July we travelled to a campsite near Rouen, then the next day we went on to a campsite near Le Mans and then after travelling a considerable distance and what seemed endless hours in the minibus, we arrived at Les Sables d'Olonne where we stayed for four days. After our few days of rest and the pleasure of not being stuck inside the minibus, we began our journey back to Calais. On the way back we camped overnight at La Meilleray-de-Bretagne, a site which proved to be better than expected.

On the 5th August we travelled to a campsite at Pont-Farcy, stopping off on the way at a small wood for some lunch. This area was used for pony trekking and so had a well-trodden path around the perimeter, which we followed. The site was quite unproductive although we did find specimens of the Club tailed (*Gomphus vulgatissimus*) and Gold-ringed dragonfly (*Cordulegaster boltonii*) as well as a few nice hoverflies and a large longhorn (*Prionus* sp.) My personal favourite at this site was a slug (*Limax cinereoniger*); this was no ordinary slug, but a monster. When fully-extended it measured some 12cm in length.

We spent most of the last day travelling towards Calais, which was very boring, although the campsite where we spent the night made up for the uninteresting day. We stayed our last night in France in a large woodland complex called Bois de Guines, and although we did not do much fieldwork, we had a good time messing about. In the morning before going to Calais we spent a short time around the woodland where we found a few nice beetles, with Joe and Matthew catching probably the best beetles of the whole trip. These were specimens of *Chrysocarabus auronitens* which is a large metallic green ground beetle measuring some 3cm in length.

There are far too many people who helped make this trip possible to list them all, so I'm not going to try, although the following deserve a mention: Steve Paine, who transported Marianne to and from the various Entomological Fairs for the fund-raising raffles. Gina and Vance Barton for supplying paper and also producing the information letters for the juniors. Thanks also to Duncan Reavey, who helped us in our hour of need, and found us a minibus driver. Scott Keiller deserves a big thanks, since if he had not volunteered as the driver at the last minute we would not have made it past Worthing, and not forgetting his Daisy Chainsaw which gave us "light" relief from Metalica. I would also like to thank Mr Tony Barlow for his help in identifying some of the insects collected.

The following companies deserve thanks for helping with fund-raising by donating either gifts or money: J. Chandler, Builders Merchants, Lewes, East Sussex; T.S.B. Bank, Worthing, West Sussex; J. Sainsbury PLC, Stamford Street, London; The Boots Company PLC, Nottingham, Safeway House, Hayes, Middlesex. We would also like to thank the AES Council for their support, and the various entomologists we pestered for information and help.

Lastly we would like to thank all the Juniors and their long-suffering parents for making this trip such a success (?). Well, that about wraps it up, apart from "Together, we are Wild Entomologists!" (Plate CC, Fig. 1; Plate DD, Fig. 3).

THE GIBBERING DIPTERIST TALKS BACK!

by Ben Woodcock (8938J)

It was while sitting at home mellowing out to some excellent Hendrix that my Mum gave me a threat letter from Darren. The letter informed me to produce a write-up or else. There was of course a good reason for this letter (i.e. it wasn't just Darren randomly sending letters for a bit of a laugh). This was to be the concluding episode of the '93 field fortnight provided by all those who went and were asked to produce some sort of account.

As I was not personally allocated a site to write about, it seemed only logical to write an account of the Diptera (flies) that we recorded at the sites visited, since I am a Dipterist.

As ever the best Diptera were the hoverflies (Syrphidae). In this family, species of the genus *Volucella* were abundant — as well as the common *V. bombylans* and *V. pellucens* we also found the very impressive *V. zonaria.* This hornet mimic invoked minor panic on Guy, when he came across half a dozen of them hiding under a low concrete bridge by a dried-up stream. After the rush by Guy and myself to catch some specimens, we discovered that we were not going to be stung through our nets. Panic over, fly identified. At the same site I caught a very small specimen of *Episyrphus balteatus,* which measured only 5mm in length, but the huge numbers of this species meant that size variation such as this was inevitable.

Eristalinus sepulchralis was very common around a series of small pools near the sand dunes at Les Sables d'Olone. It was also near this site that myself, Guy and Darren spent at least ten minutes trying to understand a passing native (French type person) as he tried, using a variety of hand movements and French language, to inform us that the area we were standing in was full of ''serpents'' — snakes which we did not see. The site was quite good and Darren obtained some excellent action shots (mid-air snap-shots, one of which is shown on Plate EE, Fig. 4— DJM).

Another family of Diptera which proved frequent in our catches was the Tabanidae (horseflies). Most of those specimens caught tended to be more impressive in size than scarce. However, great effort was put in to catch as many species as possible. Two large species that were caught were *Tabanus sudeticus* and *T. bovinus.* The standard method of capture employed was simple; the collector would stand by a pond or similar wet habitat wearing a pair of shorts. Next, the collector would shout for a net (if he did not have one already) while at the same time trying not to twitch as the flies systematically sucked him dry. The alternative method and the preferred one by most people is to catch those eating a friend. Most of the Tabanids obtained were found in marshy areas. One of the better sites for Tabanids was at St Vincent-de-Larover (near Le Mans) in which a large pool provided suitable habitats.

Species of Tabanids recorded during the trip included *Tabanus bromius, T. sudeticus, Haematapota pluvalis, H. italica* and *Chrysops relicta.*

The dune systems at Quend Plage les Pins and Les Sables d'Olone proved to be quite productive for robberflies (Asilidae). Although only a few specimens were recorded, the size of the specimens was very impressive. The huge and colourful *Asilus crabroniformis* is one hell of a shock to an entomologist who has not seen one before. They're even bigger when they have prey clasped in their legs.

The Tachinidae (the friendly (?) parasitic flies) were everywhere, as were the Calliphoridae (bluebottles etc). Without a doubt the most excellent tachinid caught on the entire trip was the strange and wonderful *Alophora hemiptera* first caught by Darren at a supermarket near

Blangy-sur-Bresle. The yellow-orange abdomen with the central black stripe, and the mottled fan-shaped wings of the male give this species a most distinctive appearance. The small but brightly-coloured *Minthro rufoventrius lacera* was another tachinid that was regularly recorded.

We found many species of fleshflies (*Sarcophaga* spp.: Sarcophagidae), such as *S. frenta.* (I'd love to be able to give more examples of this genus, but I haven't got round to identifying them all yet.) The Calliphorids were represented by species of *Lucilia* which were extremely common throughout the trip. Other species of Calliphorid so far identified include *Phormia terraenovae* and *Calliphora vomitoria.*

That fun family of Diptera the Muscidae (houseflies etc) were as common as the Tachinids throughout the voyage of adventure. One of the best species that was recorded was *Mesembrina meridiana.* This is a jet-black species that at first glance would appear to be more like a Calliphorid than a Muscid, due to its robust bluebottle shape. We first found this species resting on the trunks of Lombardy poplars in the evening near Vironchaux.

In general the trip was great for Diptera, producing a huge number of species, of which I have only mentioned a few, mainly due to my laziness, and I would feel bad about people having to read a long list of scientific names which probably mean nothing to non-dipterists. Still, with the aid of net, one slightly-used Darren and a large dose of Metalica (to avoid death by boredom in the minibus journeys) we pulled through.

THE LADYBIRDS

by Carolinne Wilmott (8911)

During our stay in France a fair number of ladybirds were found, a total of eleven species, including three forms of the two-spot ladybird *Adalia bipunctata* (*typica, quadrimaculata* and *sexpustulata*) and one species as yet unidentified.

Bourbourg, our first campsite, produced a solitary Twenty-two spot (*Thea 22-punctata*), and several Fourteen-spot ladybirds (*Propylea 14-punctata*), although the Seven-spot ladybird (*Coccinella 7-punctata*) was out in force.

However, there was a major excitement at Quend Plage des Pins when Darren caught (and released on the grounds that he thought I would not be interested!) the first Thirteen-spot ladybird (*Hippodamia 13-punctata*) I've ever come close to. Knowing this species was present at the site, Dion and I went sweeping until, to my great delight one turned up. Majerus & Kearns (1989) (*Naturalists' Handbook No. 10: Ladybirds*) quote this as a marshland species, yet this was found on an area of mature sand dunes (largely sand, but colonised by scrub). There was a small pond on the site, but not in the same area.

The campsite of the next night, St Vincent-du-Louron also proved quite exciting (for ladybirds). A few Seven-spot ladybirds were found, along with several hundred Twenty-two spot ladybirds. Amongst these were a few Sixteen-spot ladybirds (*Micraspis 16-punctata*) which were taken from a single sweeping along a roadside verge.

Les Sables d'Olonne produced the longest species list. The Fourteen-spot, Seven-spot, Twenty-two spot and the first Kidney spot (*Chilocoris renipustulatus*), Adonis (*Adonia variegata*) and the largest Eyed ladybird I have ever seen, plus the three forms of the Two-spot ladybird mentioned earlier.

The forms of the Two-spot ladybirds were found on a single tree (possibly *Prunus*) by the side of a main road. The melanic forms had not previously been found and these individuals were at a site close to a large town.

Back on the sand dunes the unidentified species was taken. This is similar to the Fourteen-spot ladybird (*P. 14-punctata*), but the markings were less distinct and the pronotal pattern was completely different.

Our last night was spent at Blangy-sur-Bresle, which produced another new species to our list. The pools near the campsite looked interesting, and when Dion returned from a collecting trip I was quite excited by the Five-spot ladybird she had found. Sweeping the herbage close to the pools that evening proved this species to be quite common. We also found the Seven-spot, Twenty-two spot and the Two-spot ladybirds (*A. bipunctata* f. *typica*), as well as the same unidentified species found at Les Sables.

In general (the rare species excluded) the relative abundance of species was about the same as found in Britain, though the Fourteen-spot ladybird (*P. 14-punctata*) was considerably more scarce. Most sites had the common species of ladybirds that would be expected, the only exception being the Thirteen-spot which turned up in a peculiar habitat for that species.

There is a noticeable lack of "non-ladybird" Coccinellids. This is mainly due to the fact that many of the species collected were from other junior members. Since no-one else was particularly interested in ladybirds, the "less-interesting" Coccinellids may well have been overlooked in the excitement of so many weird and wonderful insects.

WEDNESDAY 29th JULY

by Joe Parker (9002J)

It was about the third or fourth day in France when we visited a sand dune site. I can't remember where it was though, only that it was in France. (Quend Plage les Pins.— DJM.)

The sun baked down on our skin and the sea rang in our ears. As soon as we got out of the bus the Ent-Activity began. We all went our separate ways, including those lovely annoying dipterists. Matthew and I went off together as usual. Matthew with the containers and me with the sweep net. There seemed to be nothing alive at first except for Diptera (flies). We ventured on and saw a viviparous lizard which obviously thought it was time for a sharp exit and so departed.

Our shoes sank into the sand and the sand sank into our shoes, but still no insects. Dune after dune, barbed wire fences, but still we traipsed on. We had obviously gone where no amateur entomologists had gone before.

However, we did find some sea spurge plants, but this was no ordinary sea spurge because . . . "Woh ! ! ! Joe! Come 'ere quick!" We had found Spurge hawkmoth caterpillars (*Hyles euphorbiae*). We took about ten and left all the small ones (shown on Plate FF, Fig. 6).

Then Matthew came across an ant lion. It was rather tatty and beaten-up, but since I had never come across an ant lion before Matthew let me have the specimen. We eventually came across a pond that had fresh water in it (I tasted it). There were what looked like flying potatoes in it, but they were actually edible frogs. I tried to catch them but instead of catching the frogs, which were extremely fleet of hop, I caught two great Silver water beetles (*Hydrophilus piceus*), which made me extremely chuffed! I gave one to Matthew and kept one for myself.

We also caught other water beetles including the Screech beetle (*Hygrobia hermanii*), the Great diving beetle (*Dytiscus* sp.) and some *Colymbytes* species as well as many dragonfly larvae. I caught another Silver water beetle which I saved for a friend at home. All these insects were caught with my indispensable sweep net, which looked tired and soaked. I let him have the rest of the day off, and went for a drink and a swim in the sea.

Other insects found at this site included Scarlet tiger moths (*Callimorpha dominula*), Grayling butterflies (*Hipparchia semele*), Tiger beetles (*Cicindella* sp.), Bee chafers (*Trichius fasciatus*) (Plate FF, Fig. 7), Thirteen-spot ladybirds (*Hippodamia 13-punctata*), Musk beetles (*Aromia moschata*), Blue-winged grasshoppers (*Oedipoda caerulescens*), Mottled grasshoppers (*Myrmeleotettix maculatus*), Long-winged coneheads (*Conocephalus discolor*), Wood crickets (*Nemobius sylvestris*) and plenty of bees and wasps.

THURSDAY 30th JULY

by Neil Grant (8906)

On Thursday we left Rouen and travelled towards La Fleche on the N23 road. On the way there we decided to have a bite to eat, so we stopped off at a small snack bar. During this short break we had a look around a small pine plantation next to the snack bar. As we walked into the plantation we could hear the sound of chirping Wood crickets (*N. sylvestris*). We also found loads of large black ants, walking around on the leaf litter. I lifted up a log and about twenty or thirty of these ants ran in all directions. We thought that they were probably one of the Hercules ants (*Camponotus* spp.), which are bigger than the Wood ant (*Formica rufa*). At the edge of the plantation was a small access road with grass verges, along which we found the Blue-winged grasshopper (*Oedipoda caerulescens*).

We carried on further down the road and came across a small area of rough grassland with a small dried-up stream on one side. There were loads of insects flying around a small pool in the stream bed including Hornets (*Vespa* sp.), paper wasps (*Polistes* spp.) and a few large horseflies and large hoverflies (*Volucella zonaria*). In the grassland we caught some Praying mantids (*Mantis religiosa*) and I also caught a large spider with yellow, white and black markings which we identified as *Argiope bruennichi* (Plate FF, Fig. 5). We also saw our first Swallowtail butterfly, which raced past and flew into a garden.

When we arrived at La Fleche, Carolinne, Scott and Marianne went shopping, while the rest of us went collecting alongside the River Loire. Next to the river was a stone wall which had loads of wall lizards scuttling up and down it. We saw several species of dragon and damselflies, including the Black-tailed skimmer (*Orthetrum cancellatum*), the Red-eyed damselfly (*Erythromma najas*), the White-legged damselfly (*Platycnemis pennipes*) and a few species of *Coenagrion* which we did not catch. We then decided to go for a swim to cool off. We had a good swim about and even under some fountains. (Darren got cramp!)

After our refreshing swim we returned to the minibus and travelled on until we stopped at St Vincent-de-Lorover, near Le Mans. This was a good campsite. There was a woodland and quite a large lake nearby. I found loads of red and black shieldbugs (*Graphosoma italicum*) and Joe got very excited when he caught a female Stag beetle (*Lucanus cervus*). We also caught some Lesser stag beetles (*Dorcus paralellipipedus*), a nice orange-brown and black Longhorn beetle (*Strangalia quadrifasciata*) and some Glow-worms (*Lampyris noctiluca*).

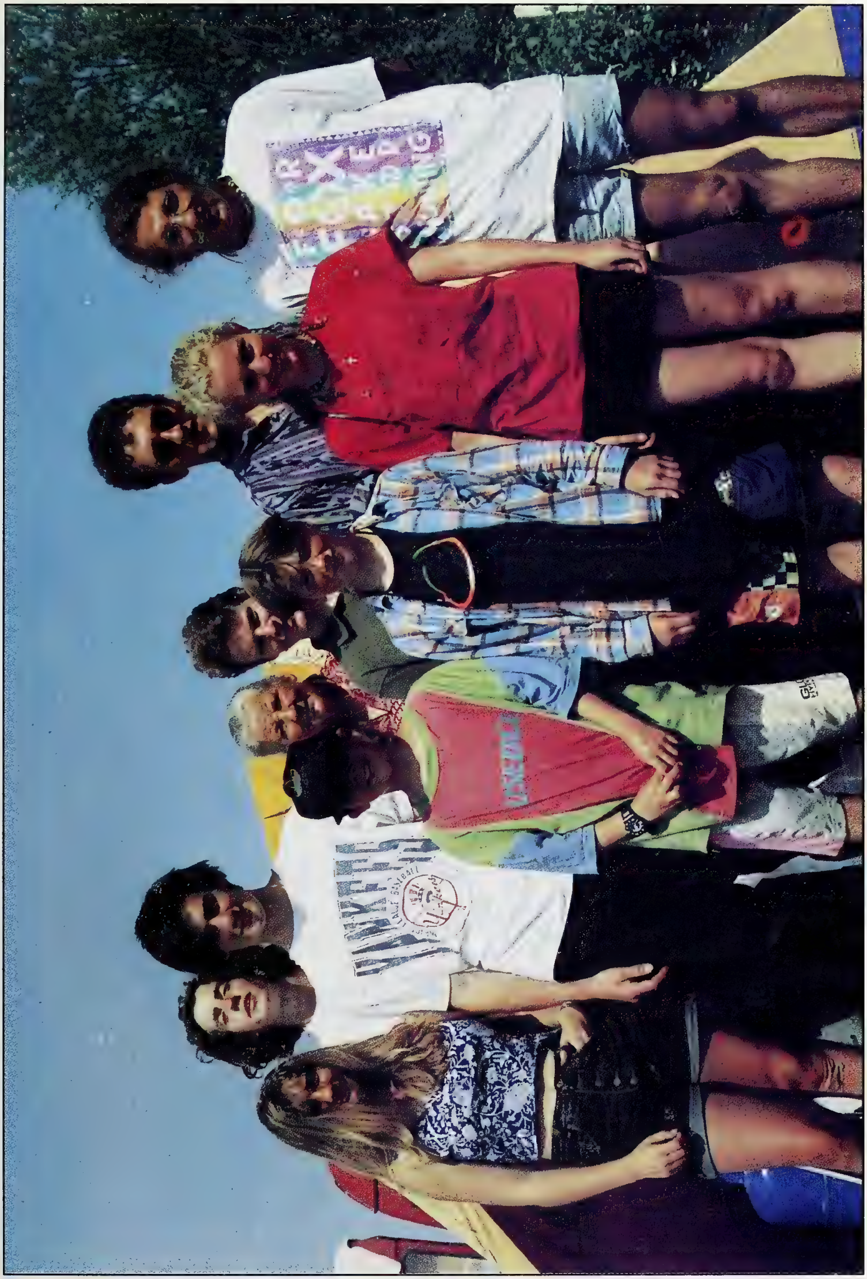

Fig. 1. The Gang: Dion Battersby, Guy Knight, Ben Woodcock, Joe Parker, Marianne Battersby, Neil Grant, Mathew Hogg, Scott Keiller, Carolinne Wilmott, Darren Mann.

PLATE CC

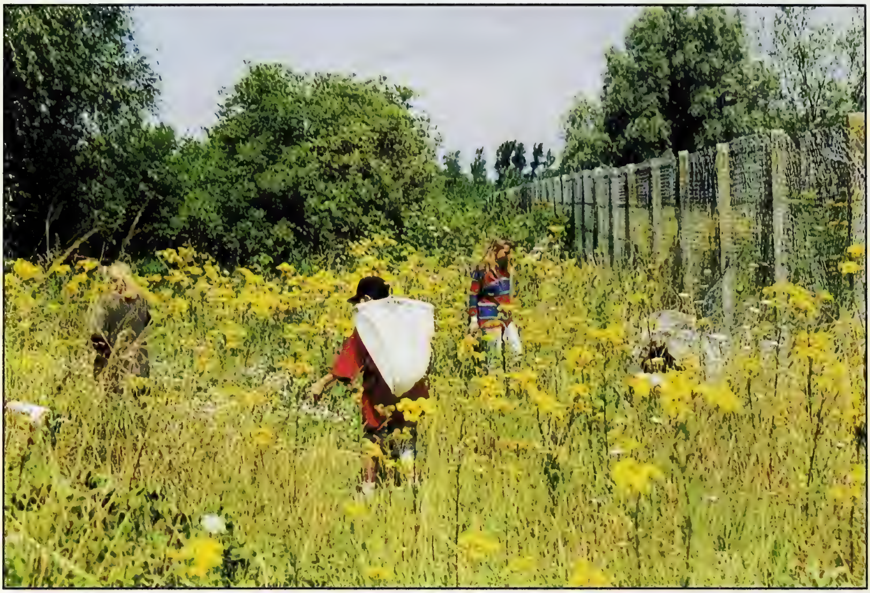

Fig. 2. Mellow yellow; plenty of ragwort singularly lacking in bugs.

Fig. 3. Time to relax, examine the day's catch and "Fill your face".

PLATE DD

Fig. 4. Ben Woodcock, the "Action" man!

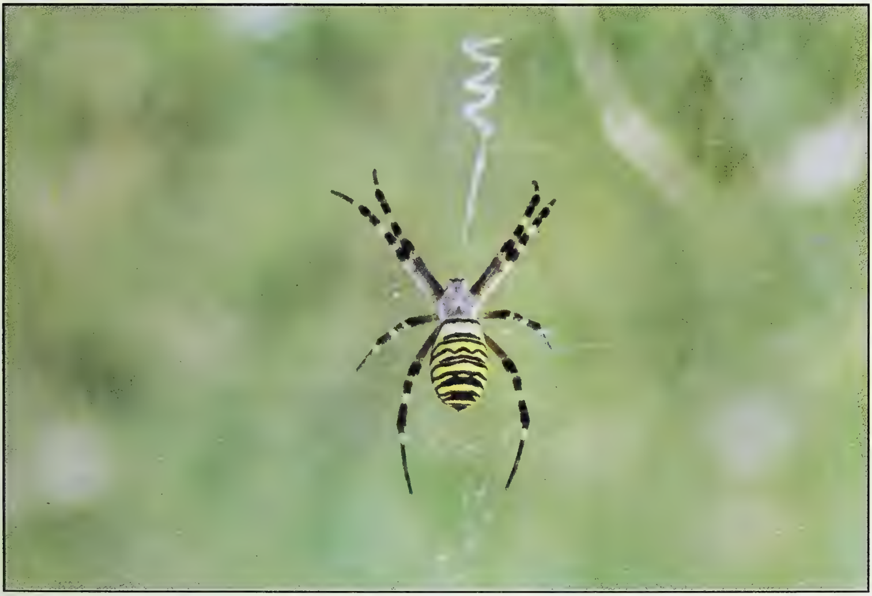

Fig. 5. *Argiope bruennichi,* the best spider we found and then got bored with.

PLATE EE

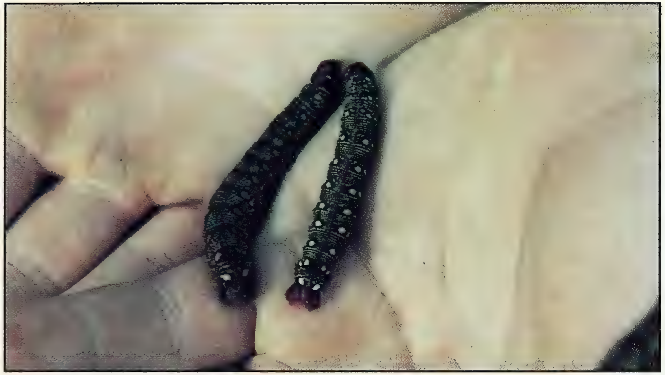

Fig. 6. Spurge hawkmoth caterpillars *(Photo: Marianne Battersby)*.

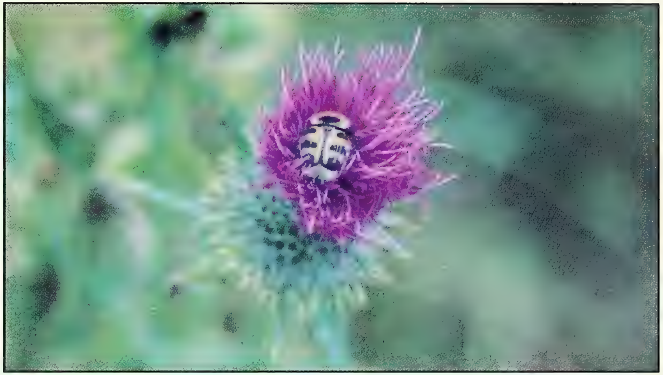

Fig. 7. The chafer *Trichius fasciatus* on a thistle *(Photo: Marianne Battersby)*.

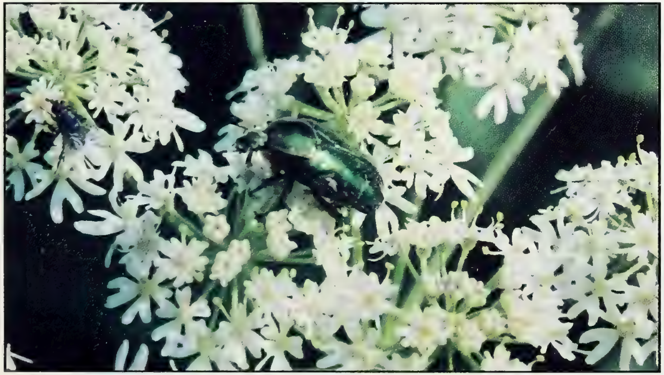

Fig. 8. A chafer, *Cetonia* sp., on an Umbelifer flower *(Photo: Marianne Battersby)*.

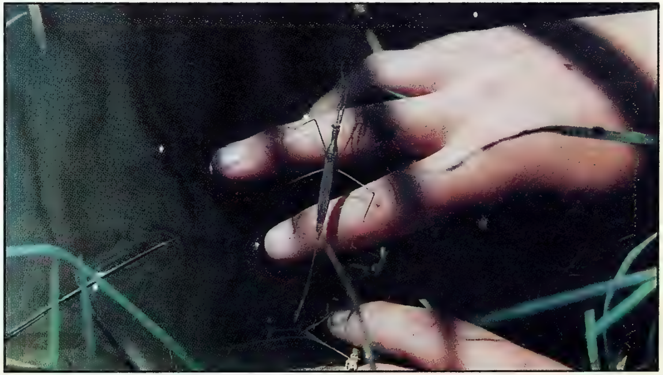

Fig. 9. *Ranatra linearis* enjoying some fingers *(Photo: Marianne Battersby)*.

PLATE FF

That night we used the minibus headlights to attract insects onto a white sheet from the surrounding area. There were quite a few moths and a few flies. The best thing was a large Longhorn beetle that flew down from the Lombardy poplars nearby and landed on the tent. I managed to catch it. We identified it later as *Megopsis scabricornis,* which is thought to be a scarce species.

FRIDAY 31st JULY

by Guy Knight (8040J)

On Friday 31st July we continued to head south to a large sand dune system called Les Sables d'Olonne. During the journey, in order to avoid a restaurant selling horse burgers, Darren had been collecting in a small area of woodland where he had caught a male of the striking Sphecid wasp *Leistica clypeata* together with the parasitic wasp *Evania appendigaster* (Evaniidae) whose larvae mature in the ootheca (egg cases) of cockroaches (*Ectobius* spp. Blattellidae: Ectobiinae) and also several red and black striped shieldbugs *Graphosoma italicum* from the flowerheads of umbellifers.

We arrived at the sand dune system in the early evening and found a campsite on the dunes. The dunes proved very productive and offered an excellent habitat for Aculeates (Hymenoptera), due to the numerous sandy areas suitable for nesting and the abundance of flowering plants on the more mature dunes.

The site itself offered a wide range of conditions from open sand of the beach and the embryo dunes on which hardy plants such as marram grass and in some places sea holly and sea spurge were found. Then there were almost scrub areas on the inland dunes which consisted of thickets of sea buckthorn, willows and large areas of bramble, leading up to planted areas of coniferous woodland interspersed with small areas of silver birch.

Due to the productiveness of collecting at this site we stayed there for a further three days during which time many insect species, most notably of the orders Orthoptera (grasshoppers, crickets and bush crickets), Hemiptera (true bugs) and Hymenoptera (bees and wasps) were found. Unfortunately, as of yet, I have been unable to positively identify all the Aculeates down to species level, but the following genera have been determined: Sphecoidea (digger wasps) two species of *Bembix,* a group of large yellow and black wasps absent from Great Britain; *Cerceris* spp., *Ammophila* spp. which are large red and black wasps similar to the British species; *Podalonia* sp. and *Astata* sp. Other wasps found included species of *Scolia* (Scoliidae), several males and a single female of the velvet ant *Mutilla* spp. (Mutillidae), *Tiphia* (Tiphiidae), *Eumenes*

(Eumenidae) and several species of paper wasps *Polistes* spp. (Vespidae), of which we also found nests in amongst the wild privet bushes. We also found several species of ruby tailed wasps (Chrysidae) including a large species with a green and blue thorax and an orange abdomen also marked with white and several specimens of all red and all blue species similar to the British *Omalus*. We also caught several large and unusual spider hunting wasps (Pompilidae).

The bees collected during the trip included *Colletes* sp. (Colletidae), *Megachile* sp. (Megachilidae), *Coelioxys* (Melittidae), *Epeolus* (Anthophoridae), large *Sphecodes* sp. (Halictidae) and several unfamiliar bumble bees *Bombus* spp. The largest bee caught was a specimen of the Carpenter bee (*Xylocopa* sp.).

There were numerous robber flies on the dunes including the impressive *Asilus crabroniformis* (Asilidae); there were also several species of bee flies (Bombylidae).

The Orthoptera found included the grasshoppers *Oedaleus decorus*, which has green hindwings, *Sphingonotus caerulans, Oedipoda caerulescens*, both of which have blue hindwings, the mottled grasshopper (*Myrmeleotettix maculatus*) and a few species resembling the common field grasshopper (*Chorthippus* spp.). We also found specimens of the Italian cricket (*Oecanthus pellucens*).

The Coleoptera collected included dor beetles (*Geotrupes* sp.), chafers (*Melolontha* sp.) and a tiger beetle (*Cicindella* sp.). Hemiptera included many species of shieldbug including *Eurydema ornatum, E. oleraceum, Eureygaster maura, Ancyrosoma leucogrammes, Elasmucha ferrugata, Odontoscelis dorsalsis* and *Sehirus luctuosus*. Other insects of note were the large ant lions (Myrmeleonidae) seen flying over the dunes, praying mantids (*Mantis religiosa*) were very common in patches of reeds and on the shrubs. We also found the stick insect *Clonopsis gallica*, which was abundant on wild privet. Under debris near the high tide mark we found the large earwig *Labidura riparia*. The only two butterflies we actually got round to identify were the Cardinal and the Spotted fritillary.

Collecting at night proved very productive especially for mantids, stick insects and cockroaches (*Ectobius* spp.)

TUESDAY 4th AUGUST

by Matthew Hogg (9065J)

After our "on time as ever" camp leader Darren returned, we set off north and arrived at a pleasant campsite near Le-Meilleray-de-Bretagne, which had only one other lot of campers. We were surprised to find out that they were English. Later (after Darren had been talking to them for the last half-hour) we discovered that they had just returned from a most hot trip in the South of France and that they had seen some excellent insects, including stag beetles. (No way!)

After setting up the tents and looking around for a while, we went to look at two large ponds (which were undoubtedly used for fishing). Both of the pools had masses of edible frogs . . . out of this world. Also whilst walking around the edge of one of the pools we saw a couple of grass snakes, and on a small patch of reedmace were clusters of beetles. Joe and I managed to catch a couple of water stick insects (*Ranatra linearis*) (Plate FF, Fig. 9) which were covered in mites.

The campsite toilets proved most interesting. In the basins and on the walls, we found field crickets (*Gryllus campestris*), bush crickets (*Platycleis* sp.) and an Anthibid weevil and some moths. The toilets and shower were interesting in themselves, as once you had finished and shut the door, the lights went out, water came pouring out of all four corners of the room, and just above the toilet seat came a red glow and hot air was blown out. After reporting this back at the campsite, I think almost everyone had a go. "Excellent! !"

The next morning we decided to stick around for a while. After breakfast Darren saw a most excellent Scarce swallowtail butterfly (*Iphiclides podalirius*), which of course posed for a few pictures. Almost as soon as Joe got into the site, there was a scream of delight — "Colorado beetles!". This seemed like a good enough reason for the rest of us to pile into this small allotment-type site. I found an interesting bush cricket, which Darren couldn't identify! About ten minutes later there was a scream from Darren — "Get me a net, quick! !", and after an extra fast swoop of the net a most excellent "dudiferous" carpenter bee (*Xylocopa* sp.) had been caught. Guy was most pleased with this.

THURSDAY 6th AUGUST

by Dion Battersby (8947J)

After leaving Pont-Farcy we continued the depressing journey back north. Most of the day was spent in the minibus, inside which, some of us attempted to identify our most recent catches, while the others tried to catch up on sleep.

We eventually got to our destination — Blangy-sur-Brestle — where we stopped off at a local supermarket to buy more supplies. The supermarket car park was surrounded by fields and allotments with boundary ditches, in which there were lots of willow trees. On the willows we found a number of leaf beetle (Chrysomelidae) species, even more *Argiope bruennichi* spiders, and an interesting parasitic fly, *Alophora hemiptera,* which has groovy wing markings and an unusual trait of parasitising bugs.

The campsite was alongside some old gravel pits which were now pools, which had some *very* marshy areas (which Dion tested the depth of!— DJM). After a brief sweep with my net and quick wade in the mud, I managed to find some interesting leaf beetles, namely *Zeugophora subspinosa, Chrysolina fastuosa, C. menthastri, Lema lichensis,* and a Bloody-nosed beetle (*Timarcha tenebricosa).*

We went out again later that evening, and caught several Five-spot ladybirds (*Coccinella 5-punctata*). This was the best beetle of the day partly because no-one had seen this species before back home, but mostly because it put Carolinne in an excellent mood for the rest of the night. In the evening session we also found quite a few species of sawflies, a few Short-winged coneheads (*Conocephalus dorsalis*) and some interesting flies.

The next morning before we left, we had another trip around the site, but the only insect of interest found was the amazingly beautiful Rose chafer (*Cetonia aurata*).

BOOK REVIEW

Butterflies of the Doncaster district by Edward Rimmington. Sorby Natural History Society, 1992. Obtainable from Graham Sedgswick, 37 Arnthorpe Road, Sheffield. Price £4.37 post free.

Exposing fraud amongst Victorian butterfly dealers, cataloguing the demise of the Large heath in the local district, and gathering a lifetime's work on the study of butterflies in the locality, *Butterflies of the Doncaster District,* by Edward Rimmington FRES is the latest in the "Special Series" from Sorby Natural History Society.

Covering all the species known to have been recorded in the area, it extends beyond the boundaries of Doncaster Borough to include parts of Barnsley, Rotherham, Lincolnshire and North Yorkshire.

Each species is examined in detail, against a broad, regional or national canvas. A set of histograms details flight periods for each species, and local larval foodplants are given.

The historical information is fascinating, examining the lives and work of Doncaster's impressive array of lepidopterists over the years. The Rev F.O. Morris, William Warren, Dr H.H. Corbett, and George Hyde — all are featured.

Of interest to all naturalists and conservationists, it has great value for other invertebrates too.

Those ordering by post should make cheques payable to Sorby Natural History Society.

Bryan Winslade

ENTOMOLOGISTS AND NATURE RESERVES — A WARDEN'S VIEWPOINT

by Tony Davis (8931)

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In recent times there have been a number of references in the entomological publications on the perceived relationship between entomologists and nature reserves and their wardens/rangers. These comments have invariably been made from the entomologist's point of view and have usually been none too complimentary about the wardens. As one such warden/ranger, responsible for several heathland SSSIs in north Hampshire, I would like to address some of the issues involved.

An often-quoted criticism of my breed is that "They do not understand entomology and would therefore try to prevent me from doing what I want to do".

Whilst it is fair to say that many, perhaps most, wardens do not fully understand the art of entomology, the vast majority are reasonable people who will listen if you explain the purpose of your activities and will then, like as not, permit you to do what you want. This is particularly so if you approach the warden for permission **before** you get caught! Most wardens are rather possessive about "their" site and the sight of someone wandering around with strange equipment (i.e. anything other than a dog's lead!) is likely to prompt something along the lines of "Oi — what the bleep do you think you're doing?" Although I hope that most of my colleagues would be somewhat more subtle I'm afraid that the excuse of "I didn't know it was a nature reserve/whom to contact" doesn't really wash, as almost all sites will have prominent signs singing the praises of the owners. I appreciate that it can be quite galling for an entomologist to find that a site he has worked for years has suddenly become a nature reserve and he now needs permission, but a little diplomacy should mean that he can continue his activities unhindered — he may even receive assistance from the warden. The area where the entomologist is most likely to have problems is with collecting. I can only give my views on this but I suspect that they reflect those of my colleagues. It is unlikely that many wardens would give permission to collect butterflies or dragonflies but with other groups you should be more successful. My only objections to the collecting of other groups would be to the taking of long series of Red Data Book or Nationally Notable species or to activities that cause damage to the habitat. Anyone following the JCCBI Code for Insect Collecting would have my blessing.

So what can you do if, despite all your gentle persuasion, the warden refuses you permission to collect on his site? You have two basic options. The first is to go ahead anyway and hope that you don't get caught. This is not recommended as you have absolutely no defence and you may attract unnecessary and unpleasant consequences. The better course of action is to write a polite letter to the warden's boss, explaining what you want to do and not mentioning the fact that you have already been refused permission. If all else fails, find another site and console youself with the thought that wardens have a very high turn-over rate and in two or three years there is a good chance that there will be a new warden!

The other main complaint about wardens is that they don't care about insects other than butterflies and possibly dragonflies. They aren't interested in managing their sites for insects and that they have been responsible for the extinction of X mega-rare species through inappropriate management. I must admit that I used to hold these views and I can readily quote examples of the above. However things are rapidly changing for the better. The RSPB in particular has been singled out for criticism in this respect and whilst I am not their biggest fan, I must admit that many of their wardens now realise that there's more to life than Avocets and they do take a positive interest in their invertebrate species.

I used to take every opportunity to ram down the throats of my colleagues the need to conserve obscure beetles, flies, etc as well as attractive birds, butterflies and orchids, but I have increasingly realised that I am preaching to the converted. There is, however, a problem. No-one can be an expert in everything and even if they could, the warden who has the time or money to get his site properly surveyed, is a species that remains undescribed. An associated problem is that many wardens' bosses feel that survey and monitoring work is just an excuse to avoid doing any "real" work. (I should point out in case he reads this that my boss is an exception!)

We therefore need assistance from amateur (and professional) entomologists. When you have visited a reserve, country park, etc, please, please, please let the warden have a list of what you have recorded. You may think that as you already send your records to a national or local recorder, specialist study group, etc, that having to provide yet another person with information is too much to contemplate. However, I would argue that the site manager is the most important person to send your records to. Besides, even a photocopy of a record card is better than nothing and that does not consume a great deal of time. The ideal list would contain comments about rare and interesting species and their habitat requirements. This may seem an arduous task but it will create goodwill and makes a change during those long winter evenings from staring into a microscope.

The Amateur Entomologists' Society could help in this area. I would be prepared to undertake survey work. This should not be published in the *Bulletin* but as a separate publication so that the maximum number of people can obtain it. This may seen like free advertising for professional entomologists and others who, upon reading this, have realised that they might be able to make a bit of extra money from their hobby, but it would be a useful service to land managers and would thus help the insects we all want to conserve. I would be prepared to take on the task of collating the list, if I were asked . . . .

THE BUTTERFLIES OF EAST LEEDS — THREE ADDITIONS

by Len Winokur (8070)

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I was interested to read Richard Bailey's account of the butterflies of east Leeds (*Bulletin* **51**: 238), who might be surprised to know of two further species I have recorded for the area, at Hetchell Wood local nature reserve, Thorner, 10.5 kilometres north-east of Leeds city centre. The first is the White-letter hairstreak, *Satyrium w-album*. On 29th July 1993, I observed several specimens feeding at thistles in the course of the afternoon. I reported this occurrence to the Institute of Terrestrial Ecology at Monks Wood, though since they knew of the species' presence at the site I did not feel that the sighting warranted further documentation at the time. Its presence here is of interest however, in that it lies at the north-west limit of its distribution in mainland Britain (as is the case with the Small skipper *Thymelicus sylvestris,* which I have also recorded at Hetchell Wood) (Heath, 1982); it also happens to be one of the 22 species afforded partial protection under Schedule 9 of the Wildlife and Countryside Act 1981 (1989). The second is the Clouded yellow, *Colias croceus*. On 30th August 1983, again at Hetchell Wood, my attention was arrested by an apparently tan coloured insect receding in fast patrolling flight. However, it later returned to explore some low lying vegetation, when I confirmed it to be a male of the species listed above. This record is of interest as the species is considered to occur at such latitude only as a rare migrant (Thomas & Lewington, 1991). Other species I have recorded from Hetchell Wood include:

Large skipper, *Ochlodes venatus*
Large white, *Pieris brassicae*
Small white, *Pieris rapae*
Green-veined white, *P. napi*
Orange-tip, *Anthocharis cardamines*
Small copper, *Lycaena phlaeas*
Common blue, *Polyommatus icarus*
Red admiral, *Vanessa atalanta*
Painted lady, *Cynthia cardui*
Small tortoiseshell, *Aglais urticae*
Peacock, *Inachis io*
Wall brown, *Lasiommata megera*
Meadow brown, *Maniola jurtina*
Small heath, *Coenonympha pamphilus*

The guide to the reserve (Yorkshire Wildlife Trust) documents the Dingy skipper, *Erynnis tages,* among the species present, and reports the occurrence of the Speckled wood, *Pararge aegeria,* at nearby East Rigton, although I have never seen these, nor the Gatekeeper, *Pyronia tithonus,* Ringlet, *Aphantopus hyperantus,* nor the Camberwell beauty, *Nymphalis antiopa* at Hetchell or elsewhere in the Leeds borough. The present list thus adds three species to that given by Bailey (1992).

As it is now ten years since I made these records, it would prove informative to examine the species' current status, in view of recent concerns over the impacts of pest control measures, land management practices risking habitat fragmentation, and of short-term and long-term climatic changes, notably global warming.

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POTENTIAL IMMIGRANT HITCHES A LIFT

by Colin Smith (4861)

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Among the Pyralid moths, some are natural immigrants to Britain, and quite a number of others are artificially introduced from time to time among imported fruit, nuts, vegetables, etc., being recorded in London and the ports. It must be unusual for one of the latter group to be observed in transit. On 19th July 1993 I boarded the daily Iberia flight from Heathrow to Santiago in north-west Spain, occupying a seat at the rear of the aircraft. On the back of the seat in front of me there was resting, and occasionally moving about, a moth I could not identify but which resembled *Ancylosis oblitella* Zeller (illustrated by Barry Goater in his *British Pyralid Moths,* 1986, plate 8, figures 18 and 19). This had presumably entered the plane on a passenger's clothing or cabin baggage in Spain and had made the Santiago-London flight. We know that aircraft are well cleaned between flights, but nobody was going to notice a small moth. It would have been blown to the rear of the aircraft by the breeze caused when front and rear doors are opened as travellers alight — and could well have left through the rear exit and wandered off into the countryside around Heathrow. This insect was a male, and was unlikely to find a mate and establish a breeding population. On arrival at Santiago, the moth was still in position and showed no signs of leaving. Did it return to Heathrow next day and exit there?

A CHRISTMAS DAY FIELD TRIP

by Patrick Roper (9385)

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Field trips are one of the great delights of my life and I enjoy them just as much in winter as in summer. At the end of last year I managed to squeeze in half-an-hour on Christmas Day between returning from church and the traditional lunch. It was cold, damp and still, with heavy grey skies, and, rather than walk far, I decided to see what I could find in the wilder part of our East Sussex garden.

There were Winter gnats (Trichoceridae) on the wing here and there and one or two small swarms of the tiny, brownish-black, non-biting midge *Gymnometriocnemus brumalis* (Edwards). This is one of the small proportion of Chironomids with terrestrial larvae, perhaps associated with damp leaves, and it is common in winter in our older deciduous woods in this part of the world. It must be exceptionally tough as it will start to emerge in mid-morning as the frost fades on the grass and will swarm contentedly in cold, heavy rain though one would imagine a rain drop would deliver a knockout blow. The females are yellow with brown stripes on the thorax. There are one or two similar small black Orthocladiine Chironomids found at this time of the year but *G. brumalis* is the only one with hairs on the wing membrane but without a fringe along the squamae at the wing bases.

Despite the gnats the weather was not conducive for air-borne insects so I got out the kneeler, the sieve and the sheet of white plastic and ferreted about in the chilly mud at the roots of grass and among heaps of leaves blown under logs and bushes. I soon had a dozen or so insects in the pooter and was able to sort through them at quiet moments during the rest of the holiday. There were two beetles, the fungus-feeding Staphilinid *Bolitobius trinotatus,* attractively marked in black and yellow like polished tortoiseshell and the minute Ptilid *Acrotrichis grandicollis* Man. This 1mm speck of black is distinguished from its congeners by four quite long bristles, two at right angles to the thorax and two from the elytra. One cannot help thinking that these operate rather like the whiskers of a cat.

Grass roots and damp leaves are places favoured by many species of Lesser dung fly (Diptera: Sphaeroceridae) and I was pleased to find four in my brief spell in the field. To the naked eye Sphaerocerids are rather undistinguished small dark flies but, like most insects, they are transformed under the microscope when one can appreciate their intricate structures and subtle colours and textures. My smallest was the 2mm *Pullimosina moesta* (Villeneuve) which has a very distinctive desclerotised area on the first and second segments of the body. In fresh examples this is obvious as a v-shaped cleft on the second tergite. This species is not noted from Sussex by Pitkin (1988).

A little larger was the female *Pteremis fenestralis* (Fallén) which has a characteristic pre-apical ventral bristle on the middle tibiae. Here I have only found winged forms of this species but in northern Britain the wings invariably seem to be reduced (Pitkin, 1988). Slightly larger still was an insect I had not seen before, the handsomely marked *Sphaerocera monilis* Haliday whose sombre colour is relieved by yellow front coxae and almost white "leg warmers" on the first and second segments of the tarsi of the otherwise black front legs. Largest of all was the wholly black *Limosina silvatica* (Meigen) with a long bristle on the hind tibia and a rounded lower outer corner to the discal medial wing cell. This at 3.5mm long is the largest British Limosinine and is common in decaying vegetation in woods and elsewhere.

Other insects included the ubiquitous booklouse *Ectopsocus briggsi* McLachlan, with dark marks at the ends of the veins round the edges of its wings, a so far unidentified Braconid and an immature Homopteran plant-bug.

These winter records, while not spectacular, all help to build our picture of invertebrate life in Britain today and the colder months are undoubtedly under-worked. Perhaps other members with half an hour to spare next Christmas Day could see what they could find. In the horticultural world noting the plants in bloom at Christmas has long been a popular phenological exercise, but we entomologists could make some surprising discoveries.

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BOOK REVIEW

Microscopic life in Sphagnum by Marjorie Hingley. A5, pp64, 4 colour plates, numerous figures. Naturalists' Handbooks No. 20. Richmond Publishing Co. Ltd., 1993. Price £13.00 hdbk, £7.95pbk. (ISBN 0-85546-292-2 & 291-4).

When I was young I was given a "toy" microscope, probably because of my then interest in pond-dipping and the fascinating creatures that could be collected therein. Later, as a teenager, I acquired a sophisticated microscope and became very adept at examining all sorts of objects, preparing, staining and mounting them onto slides. I was very keen on all sorts of water life and while I could tell the difference between amoeba, a volvox, a desmid and a rotifer, I had no means of telling the difference between a diatom and a desmid, nor of identifying them to genus, let alone species and for many small animalcules, be they plant life or animal life, I could not even guess as to what Family they belonged to or even Order in some cases. Had there been a book such as this available then I might well have turned into a microscopist or even a freshwater biologist rather than becoming seriously interested in entomology, for which cheap books on identification were available.

Be that as it may, this book is a mine of information on just those animalcules I was so interested in many years ago. Although specifically dealing with those inhabiting the sphagnum mosses, it represents a cross section of all minute life to be found in association with water and very damp situations generally. Although the insect content is as minute as the life forms dealt with, the book gives a concise insight into the inter-relationship of the life forms to be found in association with sphagnum moss, opening with an account of the plant and its habitat. There is an extensive section dealing with the relationship between the moss and the various other creatures, be they flora or fauna, that live in, on or around it. The following chapters concern themselves particularly with desmids, diatoms, rhizopads and rotifers. Most are keyed out and lavishly illustrated and there is a check-list of all the various species that have so far been recorded in this interesting biotic association. There is a very extensive bibliography but the book should have had a couple more pages so that one did not need a microscope to read the index, condensed in 4½pt diamond type onto a single page! Highly recommended to all of you who already possess a microscope, or, if not, then a good reason for getting one. SAC

RHINO *ORYCTES* OR RHINO *DICEROS*?

by Chris Betts (3458)

Members may be amused by an event last summer whilst we were staying in our property in the French maritime alps. I have frequently come across specimens of the European rhinoceros beetle (*Oryctes nasicornis*) there and one day I found a dead male on the path leading up to a friend's house and showed it to him. As is often the case, he was totally unaware that such a large and spectacular insect lived in this part of France.

Shortly afterwards my mother, now over 80 and a little hard of hearing, came to stay with us and happened to call on my friend one afternoon. He was still fascinated about the rhinoceros beetle and proceeded to tell my mother the story of my finding it. When she returned, she enquired whether my friend was "all right". On being assured that he was, she said she was still a bit puzzled because he told her I had brought a rhinoceros to show him. She had then politely expressed her interest, prompting my friend for more information in the hope that this would clarify such an apparently absurd statement). She said my friend had then told her it was dead — and I had found it in the bath!!

O. nasicornis is a native of southern Europe, the only European representative of the genus. Before the use of chemical preservatives, the thermophilic larvae were common in waste oak tannery bark, but the species is now found in old sawdust, straws and similar materials. Flying in June and July, only the males have the characteristic rhinoceros horn, this appendage being much reduced in the female. Specimens can attain a body length of 40mm.

I have also found another giant of the same family in this locality, but this time a much rarer species — the black and white *Polyphylla fullo,* which I believe is known as the Pine chafer. It was a female, floating dead in our goldfish pond, and measuring almost 40mm in length. One source I have consulted says the larva feeds on sedge and grass roots, another stated that it is carnivorous on other beetle larvae. No doubt other members will know more about this than I do.

RECORDS OF MICROLEPIDOPTERA

by A.M. Emmet (1379)

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Mr Koryszko's record of the plume moth *Emmelina monodactyla* (Linnaeus) from Staffordshire (*Bulletin* **52**: 135) gives me the opportunity to draw attention to the gaps in our present knowledge of the distribution of this common species. The trouble is that if a species is common, most entomologists neglect to record it. Its range extends throughout England and Wales, but apparently it only just reaches Scotland in Wigtownshire (VC74). Yet there are entries for only 57 of the 71 English and Welsh vice-counties, it still being unrecorded from the following: VCs 3, 4, 24, 33, 41, 43, 44, 45, 54, 60, 65, 68, 69, 70. It is probably abundant in all of them except the most northerly, and I would welcome reports to fill these gaps. It is known from 17 of the 40 Irish vice-counties, the records largely following the pattern of entomological holiday-making.

It is also an opportunity to remind members that I now have distribution maps for all the British Microlepidoptera and so can tell them if their records are new to their county or are worthy of publication; see *Entomologist's Record and Journal of Variation* **103**: 201-202 (1991).

INSECT FOOD OF BLUE TITS — A LITERATURE SEARCH

by R.A. Eades (9730)

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The note by Harry Dott on blue tits (*Parus caeruleus*) selectively attacking buds of willow bushes (*Salix* sp.) is of great interest. (*Bulletin* **52**: 24). I cannot find this selectivity mentioned elsewhere in the literature.

To try to answer Mr Dott's request for information on this theme, I offer the following from various standard works, which may help members interested in the vast field of bird predation of insects, to research the literature.

Witherby *et al* (1946) state for blue tit: "Food. Although injurious to ripe apples and pears in autumn, and prone to attack buds in spring, the good done by devouring injurious insects outweighs damage except in special cases. Young fed on larvae of Lepidoptera (*Tineina*) and Aphides. Insects taken include Coleoptera, especially weevils (*Anthonomus,* etc), small Lepidoptera (*Tineina*), larvae of Diptera, Hymenoptera (larvae of gall insect *Cynips*) Hemiptera (plant-lice (Aphides) and scale insects) are also largely eaten. Also spiders and millipedes". There was an emphasis at that time on stressing the possible economic benefits of insectivorous birds, trying to counter earlier prejudices such as church wardens paying bounties for the heads of tomtits.

Barnes (1975) wrote a perceptive volume with two chapters of direct relevance, namely chapter 7, *Feeding and Food storing* and chapter 10 *Pests or Pest controllers.* His field work was mainly done in the Lake District. He found that after the breeding season, blue tits "seem to be attracted to low lying land with willows and reed beds." In the spring he found them in Weatherboard "attacking oak buds on 40 occasions, elm on 12, pear on six and buds of six other tree species from one to four times." He experimented with a captive, injured blue tit by offering it twigs of various species, and it ate many buds without seeming to select oak buds. He did not mention whether any of these were likely to contain insects. In chapter 10 he looks at the vexed question of blue tits "destroying buds of fruit trees in spring" and says "it is important to distinguish the entirely harmless and probably beneficial, picking of aphides and insect eggs off the outside of the bud, which is a regular feeding practice, especially of blue tits, through the winter and spring, from the actual destruction of buds. Sometimes tits will peck at opening blossom to extract insect eggs and larvae, and they may cause some damage to the blossom in the process." However he quotes Monica Betts's work in the Forest of Dean "That the buds of trees in spring form an important part of the blue tits' diet, and that normally any animal matter taken with vegetable is accidental . . . nearly all the blue tits had been eating oak buds . . . elsewhere . . . the buds of other trees, including pear and plum, are occasionally eaten. Even, it seems, when these contain no form of insect life.''

Monica Betts's work is frequently mentioned in the literature. She calculated that the insects destroyed averaged 1344 per tit, yet this only represented 1.4% of the available stock of caterpillars in 1950 and 4.8% in 1951. She estimated that in the winter of 1950-51 tits probably ate 20% of the female winter moths in the study area in the Forest of Dean oakwoods.

Brian and Brian (1950) carried out an experiment excluding birds by caging branches of an oak tree in April. ''In June ten similar but uncaged control branches were found to be supporting 17 defoliating caterpillars, while the enclosed ones produced 63, chiefly larvae of the winter moth and the oak roller moth *Tortrix viridana.*''

Gibb (1958) made a very detailed study of coal tits (*Parus ater*) in Breckland pine woods. He found heavy predation on the tiny Eucosmid moth (now *Cydia*) *Enarmonia conicolana,* between 54% and 60% of the pupae, especially in heavily infested pine cones. High intensity hunting was noted, and had the effect of levelling out infestation, because the birds concentrated on cones with high levels of infestation.

Perrins' book (1979) is based on the long term studies at Wytham Woods, Oxford and he mentions insect/bird interactions on pages 258 and 259. He stresses that tits specialise on larvae that have themselves been parasitised by other insects. Chapter 12 deals with feeding habits, especially predation on defoliating larvae in order to feed young in the nest.

Lack (1954), chapter 17, gives a review of bird predation on insects. This is largely biased towards economically important pest species. He covers the literature on tits eating larvae of pest species in forests, especially the studies in Holland by L. Tinbergen (1949) who reported heavy predation on the Pine beauty (*Panolis griseovariegata* (now *flammea*)), Black arches (*Lymantria monacha*), and the Barred red (*Ellopia prosapiaria* (now *Hylaea fasciaria*)). Thus, Harry Dott's observation seems to be an original contribution to our knowledge of bird predation on insects and further such sightings would be worth recording.

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DEATH'S-HEAD HAWK LARVAE AND THE POISON CHALICE

by Brian Winslade (9476)

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Early in November 1992, I received a number of "Death's-head Hawkmoth (*Acherontia atropos*)" ova from Neil West. They began to hatch several days later, 17-18th November. At the time, being unemployed, I was away from home attending the Job Review Workshop in Exeter.

I had put the plastic box containing the ova on the worktop next to the Stanley cooker. Luckily my mother noticed the newly hatched larvae and they escaped what would otherwise have been "certain death". I returned home from Exeter, to find the young larvae had been transferred to another plastic box with a sprig or two of privet (*Ligustrum ovalifolium*).

I immediately transferred the young *atropos* to growing foodplant. I selected one of a number of potted privet bushes which had been grown especially for the purpose of feeding larvae. The atmosphere being fairly dry, I decided to "sleeve" them in a polythene sleeve, which was an ordinary clear plastic bag with the end cut, so that it was open at both ends. Having placed the sleeve over the bush, I secured it at the base of the stem with a plastic tie, but left the top of the sleeve unsecured to prevent excessive humidity and condensation. The larvae were then introduced, the whole outfit was then put into a warm place, and the larvae left to feed until they had devoured the entire bush. This method of keeping the larvae was used until 13th December when all the available bushes had been eaten. Although the larvae had grown reasonably well, growth had been slow, mainly as a result of the poor feed value and sparseness of the privet which had been kept indoors for several weeks. With the privet bushes shedding their yellowing leaves at a prodigious rate, it had become necessary as the larvae grew, to provide some form of supplementary feeding.

I decided to try a weak "honey and water" solution, which was sprayed on to the foliage of each newly introduced privet bush. The *atropos* larvae seemed to like this and later when the honey was used up, I substituted unrefined brown sugar for the honey. Although these solutions certainly helped eke out the last of the yellowing leaves, they were of course not able to stave off the day of reckoning when the privet finally ran out!

The day of reckoning came on Sunday evening 13th December. The remaining larvae, 16 in all, were now residing on four small privet bushes. The last of the yellowing leaves had been eaten in the last hour or two and some of the larvae in their desperation were now consuming the tips of the privet stems. Other larvae raced around in circles at the bottom of the sleeves. One larva had escaped from its sleeve and was sitting on the earth amongst some small weeds growing out of one of the pots. I was about to pick the larva up, but at that moment I noticed that it appeared to be eating one of the weeds. A closer look confirmed this. The larva was feeding quite heartily from what seems to have been a plantain. The plant was very small and in any case very little remained, so I couldn't be sure. Perhaps there was still hope?

It was 9pm as I picked up a torch and stepped outdoors into the garden. The month of December is not the best time for substitute foodplants for Death's-head hawkmoths or indeed any other species. Looking around in the torch-light, I could see very little that appeared even remotely promising. Plantain was really a non-starter, the number of these small plants available being so small. The temperature was pretty close to zero. I quickly grabbed up a selection of sprigs and leaves of the most readily at hand shrubs and herbaceous perennials. The shrubs which included climbers were: cotoneaster, rose, firethorn, holly, ivy and honeysuckle. Privet hawkmoth larvae take holly, perhaps Death's-head larvae would too? There were a number of other herbaceous plants close by and I quickly grabbed up the following: dock, mallow, buttercup, catmint, greater periwinkle, garden scabious, a kind of speedwell and foxglove. Nothing particularly promising here I thought, with the possible exception of the periwinkle, but even if this had proved suitable there was no prospect of rearing the larvae on it, as there was so little of it available. Dock was plentiful, but had suffered a little from recent frosts. At the front and side of the garden were several foxgloves, with plenty more growing wild in the nearby hedgerows. By comparison with most other herbaceous plants these looked positively tropical. If only Death's-head larvae would eat foxglove I thought. "Most unlikely". Back indoors I proceeded to lay out the foodplants and placed a larva on each plant specimen. By this time they were very hungry indeed, and within a few seconds several were taking tentative nibbles at the various foodplants, especially speedwell, malope, catmint, and surprisingly foxglove. Even more unexpected amongst the foodplants a little grass had been harvested — one larva was happily munching away at that! The initial enthusiasm which the larvae showed for the new foodplants quickly waned, within a minute or so most had stopped feeding and were beginning to wander. A minute or two later just one larva remained feeding. Too good to be true I thought, the larva was really tucking into the foxglove (*Digitalis purpurea*) leaf. I watched it feeding for further couple of minutes, half-expecting it to stop at any moment, but it didn't. Finally, I concluded that foxglove was a suitable foodplant for *atropos* larvae. A few minutes later the larvae, which by now had been transfered to a large plastic propagator, were munching away contentedly at foxglove. As with the privet I lightly sprayed the foxglove leaves with a dilute sugar solution, thinking that the feed value must be very low. With hindsight, perhaps I ought not to have done so. Anyway, well satisfied I retired to bed.

The following morning I looked in on the larvae, at around 8.30. Even before lifting the cover off the propagator, I realised that there was something seriously wrong! Peering through the light condensation, on the clear plastic roof of the propagator, I could see a larva stretched out as though dead! On removing the propagator cover, I discovered three more in the same condition. Apart from a slight rhythmic movement the larvae showed only the slightest signs of life, even when handled. In appearance the larvae resembled the familiar drowning tragedy, that is fully stretched out and even a little puffed up, when picked up they were quite limp. Oh, just one thing, I forgot to tell you, all the larvae were 5th instar and it was the biggest larvae which seemed to be worst affected! Of the 16 *atropos* larvae not one had escaped unaffected, although only four were in a really bad way, the remainder appeared weak and lethargic. I put the cover back on the propagator and assumed the worst.

I could hardly believe my eyes when I checked the larvae again early in the evening. Most were actively feeding and all now looked perfectly healthy. Over the next 10-14 days the larvae completed their growth, although there was a tendency for some of them to exhibit minor symptoms each morning, presumably as a result of the larvae gorging themselves during the main nightly feeding period. (After the first day the larvae were fed foxglove entirely free from sprayed-on sugar solution.)

By the 5th of January all but one of the larvae had pupated; this last died after going down to pupate. One pupa died after pupation apparently due to my accidently attempting to diapause it at too low a temperature. The resultant surviving 14 pupae were all on the whole moderately undersized, poor diet and partial starvation appearing to have been the chief reasons.

PSEUDOSCORPIONS REVISITED

by G.W. Danahar (5658)

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I have been much gratified by the interest in my article (*Bulletin* **50**: 277-278) on an observation I made of the phoretic pseudoscorpion. Apart from several notes pubished in subsequent editions of the *Bulletin,* I have had quite a good response from other members who have written directly to me. Considering the absence of any easily accessible information on this subject, I thought that it might be of interest to share what I have learnt.

Firstly, I was most grateful to Mr Arthur Chater who identified my specimen as *Pselaphochernes scorpioides.* As Arthur clearly pointed out to me, "this species is said to be commonly phoretic on flies" (Legg & Jones, 1968). Further, my specimen turned out to be female which might be quite significant. Arthur Chater has informed me that he once found a *Lamprochernes nodosus* on a fly in a pitfall trap, which is interesting because Jones (1970) remarks that the breeding season of this species and that of the common house fly *Musca domestica* roughly coincide. Since both these species share similar habitat requirements for at least part of their life cycle (compost and dung heaps plus other faecal material), the chances of contact between both species resulting in phoresy must be much enhanced.

Further, I received a letter from Mr Ian Abercrombie, describing two incidents where he was drawn to the erratic flight patterns of house flies (*M. domestica* I presume). On capture they revealed unwanted pseudoscorpion passengers. Having been placed in plastic boxes, the flies showed a desperate desire to rid themselves of the pseudoscorpions, brushing the affected appendages with vigour. Mr J.C. Deeming has informed me that he collected four female *Lonchaea chorea* at Fishponds, Dimmingsdale, Alton, Staffordshire, two of which were carrying two pseudoscorpions each and the other a single one. The pseudoscorpions proving to be *Lamprochernes chyzeri.* This latter observation suggests that phoretic behaviour might be dependent on some stimuli to which most individuals will respond.

Considering these reports and those reported in the *Bulletin* (Barnett, 1992, Cobb, 1992 and Plester, 1992) I must conclude that phoretic behaviour amongst pseudoscorpions is probably commonplace under appropriate conditions. Weygoldt (1969) notes that in Europe, of all pseudoscorpions the *Lamprochernes* and the *Pselaphochernes* are mostly carried in this manner (this concurs with the records above) and that all too frequently the hitch-hiker is female. The benefits of this type of behaviour must be considerable to a gravid female.

There seems to have been much debate as to the mechanisms involved in this behaviour. Many authors (Kew, 1901; Weygoldt, 1969, and Muchmore, 1971) entertain the notion that the pseudoscorpion is viewing its host not as a means of transportation but as a potential source of food. In an attempt to put this explanation into context Jones (1978) points out that a recently mated female may be driven by an immense feeling of hunger, which may result in her attacking anything, even flies. It is not too difficult to appreciate how such behaviour might eventually result in the pseudoscorpion becoming an unsuspecting passenger. Indeed, Cuthbertson (1984) supplies an intriguing observation of a gravid female *Dendochernes cyrneus* which after mating and feeding grasped a piece of paper (which was waved near it) with one of its pedipalps and went into a cataleptic state (a state of non-arousal in which there is muscular rigidity to sudden forces and plasticity to slow and maintained forces). Perhaps most phoretic pseudoscorpions are in a state of catalepsy whilst in transit? However, my own observation is in conflict with this idea. Also, Cuthbertson believes that the original evolutionary motivation to attach to the host may have been the product of predatory behaviour, but that now the advantages for dispersal to new sites might be selected for, making transportation anything but accidental.

It seems to me that notes taken on any flies (associated with dung and compost heaps) with erratic or unusual flight patterns, may elucidate many of the speculative ideas posed here.

I would like to thank all those who have written to me on this subject and especial thanks must go to Mr Arthur Chater and Mr Baldwin (Royal Museum of Scotland) for their considerable help. Any further observations should be forwarded to Dr Gerald Legg, Keeper of Biology, The Booth Museum of Natural History, 194 Dyke Road, Brighton BN1 5AA.

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BOOK REVIEW

Adults and larvae of hide, larder, carpet beetles and their relatives (Coleoptera: Dermestidae) and of Derodontid beetles (Coleoptera: Derodontidae) by Enid R. Peacock. *Handbooks for the identification of British Insects,* Vol. 5, part 3. A5. pp144, illustrated. Royal Entomological Society 1993. Price £20.00 (£14.00 to FRES) Postage extra £2.00.

The latest addition to the series of RES Handbooks covers a group already known to and feared by many Entomologists, namely the Museum beetles, together with their relatives in the Dermestidae, the hide, leather, carpet, fur, and larder beetles. This is a concise but comprehensive work which shines some light into the dark and usually unsavoury world of this small but economically important group. In addition to the usual but nonetheless useful features of the book — a species checklist, complete key to adults, and exhaustive bibliography — there are several further commendable aspects. The short key to "wild" adult Dermestids will be particularly welcomed by field Entomologists. There is also a full key to larvae, although the author is at pains to point out the difficulties involved in making determinations from larvae that are not fully grown. There is a glossary which unlike many others, includes the more basic terminology so that the beginner or student will not have to augment their use of the keys with an Entomological dictionary. Perhaps most striking of all however is the comprehensive use of illustrations. There are no less than 300 figures which include numerous close-up photographs of the salient points of identification, as well as the more usual line drawings. The book also has brief notes on the biology, control, medical importance and morphology of the group, and more detailed accounts (about half a page) on each species covering status, habits, distribution etc. All in all an excellent publication. CJG

IN THE BEGINNING. . .

by Huw Williams (9224)

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I am sure all Entomologists have to start somewhere. It began in 1977, when my uncle took me to an Exhibition at the Wembley Conference Centre. On show were insects of all shapes and sizes, but the thing that caught my eye was the different colours, especially that of the butterflies. From that moment on I was hooked. My uncle bought me ten Scarlet tiger moth caterpillars, so I had my first chance of rearing. They were fed on whatever weeds I could find — I was unsure of their natural foodplant. Even with a mixed diet, I soon had hairy caterpillars, spinning cocoons. The only problem was none of them ever emerged. This was a let down, but with the purchase of a couple of books, I was identifying anything flying over the garden fence including low flying aeroplanes.

In the next ten years, I purchased the odd book, even ones from the USA, but I never really got into this hobby, mainly due to other interests! But in 1989, whilst on holiday in Canada, my enthusiasm picked up, due to the wide and varied insect fauna, not including the biting variety. So on my return, I found that the AES were holding an exhibition at Kempton Park. I went along, enjoyed the day, the exhibits as well and joined the AES. I purchased some cages, plastic boxes and other equipment, necessary for me to really get started. But again it did not.

However in 1991, whilst visiting my friends in Canada, I took along with me a net, laurel leaves, a suitable jar and some plastic envelopes. The only small hitch was trying to explain to the Customs in Toronto, that the laurel leaves were of the non-smoking variety. A quick production of my warrant card (I'm a Sergeant in the Ministry of Defence Police) soon got me through. During my brief stay, I netted about 70 butterflies from three very different locations. The first in Toronto was on a small point called the ''Leslie Street Spit''. During reclamation programmes, lorries would go to a point on Lake Ontario and off-load bricks and concrete. The wild then took over and many different animals now inhabit the ''Spit''. I was able to capture *Pieris napi, P. rapae, Colias eurytheme, Coenonymphia inornata* and *Cynthia cardui.*

The second location was at the back of Orr Lake Golf Club. Behind the club was an area where mounds of earth had been left after the building of the course. The result, a butterfly paradise. There were so many, it was unbelievable. I tried only to take fresh specimens and was rewarded with *Papilio glaucus, Colias philodice, Nymphalis vau-album, Basilarchia arthemis, Vanessa atlanta, Basilarchia archippus, Satyrodes eurydice, Megisto cymela, Ancyloxypha numitor, Enodia anthedon, Phyciodes tharos, Speyria aphrodite* and *Lycaena phlaeas.* Also seen on the wing were *P. napi* and *rapae, Colias eurytheme, Phyciodes batesii, Charidryas nycteis, Nymphalis antiopa* and *C. cardui.* One particular area where a tyre mark had a little rain water in it, was swarming with *Ancyloxypha numitor.*

The only other time I brought out the net was in Niagara Falls, where I netted an *Everes comyntas*. I was very lucky with the weather, in three weeks I had a total of one hour's rain. The only disappointing factor was that I didn't see many Lycaenids, but this may have been due to the hot weather and being slightly out of season.

Now as every experienced entomologist knows, when you bring your catch back, you go into the motions of setting. Wrong. I had no practice in this area other than reading from books. My solution? I contacted Peter Cribb and one evening was shown the correct way to set Lepidoptera. Problem one: the butterflies had been in their respective envelopes for too long. The result: half of the contents disintegrated when removed, even after suitable relaxing time. Problem two: even after relaxing, the majority of specimens were still dry. The end result was 25 butterflies on setting boards and these left a little to be desired.

After my trials and tribulations, I now have 20 butterflies in a store box. This does not deter me, but I have learnt my lessons the hard way. Maybe from writing this piece, other people will learn from my simple mistakes.

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MYSTERIES AND MIGRANTS

by Paul Cobb (9594)

34 Staithe Road, Heacham, King's Lynn, Norfolk PE31 7EE

Following the fleeting encounters with possible Large tortoiseshells (*Nymphalis polychloros*) in 1991, reported in the *Bulletin* by both myself and our Editor, I was surprised to be asked by a friend (not an entomologist, but a man who knows his butterflies), if I could tell him anything about the status of the species in Norfolk, as on more than one occasion that same year he had seen what he thought was a Large tortoiseshell, but could never get close enough to be sure. Was there a wave of migrants that summer? Did one ever keep still long enough for someone to make a positive East Anglian identification.

I saw a number of other mysteries in West Norfolk that summer, and relate them here in case any members can resolve them.

The Common darter dragonfly (*Sympetrum striolatum*) was even more abundant than usual, and I noticed that the females frequently had the underside of the abdomen distinctly bluish in colour (a pale grey-blue shade), and sometimes the sides of the thorax was greenish. I had not observed these colours previously, and I can find no mention of them in my books. I wonder if these may have been migrants of a continental race.

On one occasion I was walking along the edge of a wood, through a cloud of hundreds of *S. striolatum* with these oddly coloured females, when I noticed a number of small to medium sized bright orange-brown butterflies flitting about high in the treetops. As I had with me neither a telescope, nor a net with a 40 foot handle, I have no idea what they were. The only possibility seems to be Brown hairstreak (*Thecla betulae*), but to the best of my knowledge this species does not occur in Norfolk. Are Brown hairstreaks ever migratory, or is there a day-flying moth that fits what I saw? Supporting my tentative theory that at least some of these insects may have been migrants, was the presence with them of a few Migrant hawker dragonflies (*Aeshna mixta*) and at least two Pale clouded yellows (*Colias hyale,* I think), the latter being a "life tick" for me as they get as far as Norfolk only on very rare occasions.

The blue-spotted species of *Aeshna* dragonflies, which were plentiful, gave me quite a few problems. While some were undoubtedly *A. mixta,* there were others I felt were the much scarcer (in this area) *A. juncea,* but I am not certain. Can anyone suggest a reliable way of separating these two species in flight, to avoid having to spend all day trying to catch one (they are too quick for me!) for a closer look? I find the slightly smaller size of *A. mixta* to be of little help in the field, unless flying in the company of one of its larger relatives for comparison. At one locality the blue spots on the last abdominal segments were partially joined to make a U-shaped mark (but not the complete band of the much greener *A. cyanea*), so which one would that have been?

And then there is the shieldbug I found this year, which keys to the Juniper shieldbug (*Cyphostethus tristriatus*), yet looks very different, is clearly not that, and does not seem to be in the book at all — but that is another story.

COMMON BLUES IN CORNWALL IN THE SUMMER OF 1982

by Adrian Spalding (6741)

Tregarne, Cusgarne, Truro, Cornwall.

In 1982, I lived in south-east Cornwall on a farm which had several small meadows surrounded by woods and hedges. One small area of grass (site 1) was on a steep south-facing bank about 50 × 50 metres, and contained a small colony of Marbled whites as well as Common blues, some Green hairstreaks and other butterflies. The nearest meadow (site 2) was about 100 metres away, separated by a strip of oak coppice, but site 1 was linked to another meadow (site 3) by a grassy track 3-4 metres wide and about 350 metres long. Common blues occurred in this meadow, together with Small skippers, Small pearl-bordered fritillaries, Orange-tips and other butterflies. I wondered whether the two colonies of Common blue were linked and how many butterflies there were. I marked and released most of the Common blues that I found in both places. I used felt-tip pens, using different colours to denote the place and date of capture.

The flight period of the first brood here in 1982 appeared to be only 14 days, lasting from 27th May to 9th June. I counted a total of 35 Common blues (9 females and 26 males), especially when egg laying, and so I may have overlooked several individuals. Although I saw six of the nine females after 3rd June, by which time I had already seen two-thirds (17) of the males. The last female I saw (on 9th June) looked very fresh and had probably just emerged. I would expect to see males before females because in many species they emerge first to be ready to mate with the females as soon as they eclose from their pupae.

I recaptured only seven of the marked butterflies. The longest-lived specimen of these marked butterflies was a male, caught on 27th May and recaptured several times until 7th June (i.e. 12 days out of the 14 day flight period). The other males lasted as follows: 27th to 28th May, 27th May to 5th June, 28th to 30th May, 28th to 3rd June, 29th May to 1st June and 29th May to 7th June. No females were recaptured. It is likely that females live only a short time in good weather, mating and laying eggs in one or two days.

Two of the butterflies changed sites. The longest-lived butterfly had moved from site 1 to site 3 by the day following its capture and it remained on this site for 11 days. Another butterfly moved from site 1 to site 2 two days later, back to site 1 the next day, back to site 2 the day after, then was recorded back at site 1 four days later. The oak coppice between the two sites did not appear to be an obstacle for this butterfly. I imagine that the butterfly flew through rather than over the wood, which had a canopy about ten metres high. However, at this time I did see a female flying over a small ash tree about seven metres high, so Common blues are capable of high flight at times. I found it interesting that one butterfly was so much more mobile than the others.

On 10th June, there was heavy rain, lightning and thunder. After this, I saw no more Common blues at these sites until 23rd July, when I saw a fresh male and then the second butterflies began to fly.

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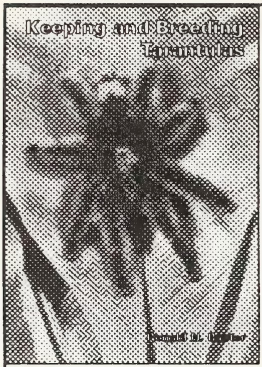

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NOTICE

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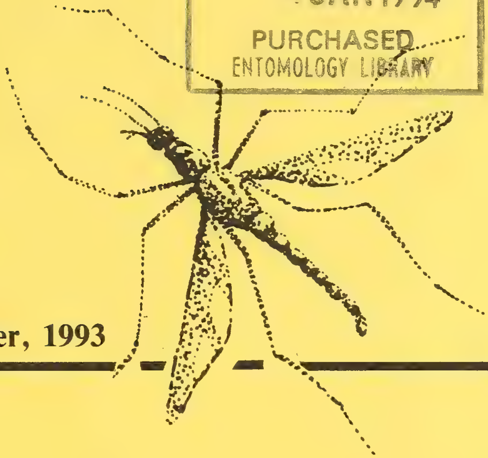

Volume 52, No. 391, December, 1993

The Bulletin of the Amateur Entomologists' Society

EDITOR
BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

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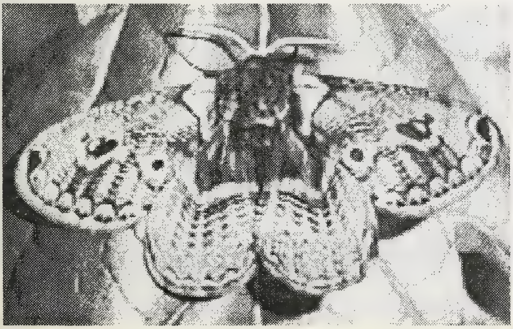

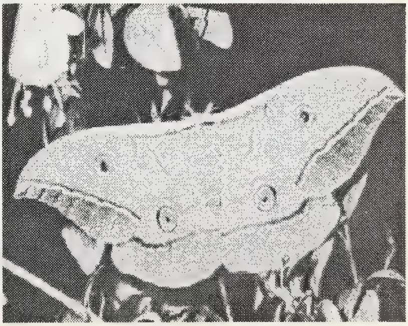

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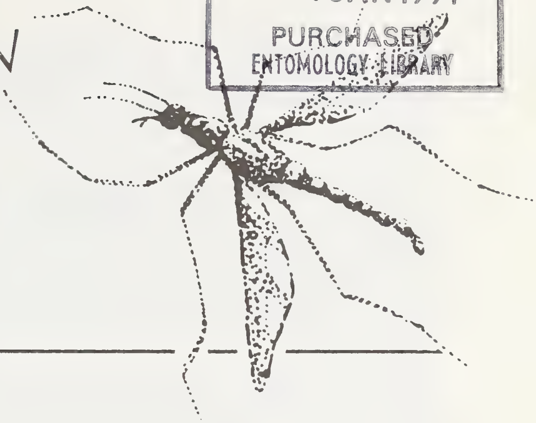

PETER CRIBB

It is with great sadness that we have to report that Peter passed away early on 31st October after a short illness bravely borne. Peter joined our Society in 1953, was elected to Council in 1957; served over the years in various roles; became General Editor in 1975 and every year could be found manning our Front Table at the Annual Exhibition. He has been a mainstay of our Society for very many years and will be greatly missed. Always a keen camper, spending his holidays studying European butterflies, Peter's last trip was this year and his account of "Spain Revisited" will be published in our next issue.

WANTED — A TREASURER

The current Hon. Treasurer has held the post for almost 15 years and has decided it is time to have a break to allow him to concentrate on other AES activities. We therefore need a volunteer to take over the post, preferably for the new year.

The main activities of the treasurer are:

(1) Keeping the records of the Society's income and expenditure, writing all cheques and reconciling the bank balance at the end of each month.

(2) Preparing the Society's annual accounts, liaising with the Society's auditor and presenting the agreed accounts to the AGM (see for example those shown in the August 1993 *Bulletin*).

(3) Chairing a finance committee meeting once a year in March to assess the required subscriptions, advertising rates etc, and making recommendations to the AES Council on these and on day to day expenditure.

The method of book-keeping is optional either manually or on computer in which case a Personal Computer, software and 130 column Printer is available. This is an interesting post and vital to the running of the Society. For offers of help or further details write to the current treasurer, Reg Fry (address in front of this *Bulletin*) or telephone him on 0206-251600.

SUBSCRIPTIONS AND BANKERS' ORDERS

Members are reminded that due to ever-increasing costs of printing and postage the subscription for 1994 has had to be raised to £9 for senior and £6 for junior members. Will all those who already pay by Bankers' Order please amend this to the new amount now, otherwise the Society's Officers will have to take the time and trouble to write reminders which will incur additional postage costs to add to our already considerable burden in this respect.

We have held the subscription rate steady for the past four years and during this period the cost of producing and posting the bi-monthly *Bulletin* has risen so that it now exceeds the present subscription rate. It is worth pointing out that compared with other entomological journals, our *Bulletin,* with 288 pages, bi-monthly and with four colour plates per issue, must be the best value for money currently available in this field.

FARMERS DECLARE THEIR LOVE FOR HEDGES

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MOTH IDENTIFICATION BY GENITALIA — A GUIDE TO INFORMATION SOURCES

by Martin Harvey (5772)

12 Cater Road, Lane End, Bucks. HP14 3JD.

Anyone who is new to moth identification soon discovers that there are several frustrating groups of species which cannot be satisfactorily identified without very detailed examination, often including the genitalia. Since I have only recently found the time/patience/courage to go to such lengths in order to confirm identifications, I have for many years included such "made-up" species as "Grey/Dark dagger, *Acronicta psi/tridens"* in my records.

Recently I have been in the process of computerising my older records, and, prompted by doubts in the reliability of some of these records (either because of youthful over-confidence when they were originally recorded, or because they have subsequently been shown to consist of more than one species), I decided to make a list of those moths which cannot safely be determined without genitalia examination (I have also included the new species recognised since the last edition of South in 1961). The following list is not intended to aid identification, but rather to highlight those species which require greater than average care in identification, and to give the information sources necessary for this.

I have used the Bradley & Fletcher (1986) nomenclature and reference numbers. For the techniques needed to examine genitalia see P.W. Cribb (Ed.) (1972) and J. Reid's essay "Techniques" in MBGBI vol. 1.

163 *Adscita statices*/164 *A. geryon*/165 *A. globulariae*
Forester/Cistus forester/Scarce forester

These species can only be safely separated by the genitalia (figured in MBGBI vol. 2, and in Pierce & Beirne, 1941; *tenuicornis* in this later work = current *globularie*). Skinner (1984) gives differences between the species in size and in the shape of the antennae, but it is difficult to be certain of these differences, particularly if one does not have access to all three species for comparison. Their ranges overlap, with *A. statices* being the most widespread, and *A. geryon* the least.

170 *Zygaena trifolii*/171 *Z. lonicerae*
Five-spot burnet/Narrow-bordered five-spot burnet

Typical specimens of these moths can be separated by wing-shape, and confluence of the central spots usually indicates *Z. trifolii;* confluent forms exist in *Z. lonicerae,* but are rare (further details in Skinner, 1984, and in MBGBI, vol. 2, which also has keys to the larvae and cocoons). Aberrations are relatively common in *Z. trifolii,* and the picture is further complicated when the various subspecies are taken into account: *Z. trifolii* has two subspecies with overlapping ranges (but different habitat preferences), *Z. lonicerae* has three subspecies, two of which are confined to Scotland. The English/Welsh subspecies of *Z. trifolii* are found further south and west than of the generally more widespread *Z. lonicerae,* but they do overlap. In these species even the genitalia are not easily distinguished. Pierce & Beirne (1941) illustrate the genitalia, but warn that only the females are readily identified by this method.

370-384 Sesiidae
Clearwings

A tricky group, but Skinner (1984), MGGBI vol. 2 and Fibiger & Kristensen (1984) all give distinguishing features.

1733 *Scotopteryx mucronata*/1734 *S.luridata*
Lead belle/July belle

Skinner (1984) gives the position of the discal spot as a distinguishing feature, but warns that the only certain method is to examine the genitalia. Tams (1985) gives genitalia illustrations, but the status of these species was uncertain at the time, and it is difficult to determine which of Tams's illustrations match the currently recognised species and subspecies. As far as I can tell, Tams's *Ortholitha umbrifera* = current *S. mucronata* ssp. *umbrifera,* Tams's *O. scotica* = current *S. mucronata* ssp. *scotia,* and Tams's *O. mucronata* = current *S. luridata.* Pierce (1914) only illustrates one species, which he knew as *Ortholitha plumbaria;* this is presumably *S. mucronata* ssp. *umbrifera. S. mucronata* is usually out a month or so earlier than *S. luridata.* Their ranges overlap: *S. mucronata* ssp. *umbrifera* is present in the south and west, with ssp. *scotica* occurring in the north of England and Scotland, while *S. luridata* extends over most of the British Isles.

1762 *Chloroclysta citrata*/1764 *C. truncata*
Dark marbled carpet/Common marbled carpet

Skinner (1984) gives the distinguishing underside wing markings for these two very variable species. There is also 1763, *C. concinnata,* the Arran carpet, in western Scotland, which may be a race of *C. truncata.* Tams (1985) gives male genitalia illustrations for all three, as does Pierce (1914; his *Cidaria immanata* = current *C. citrata*).

1767 *Thera firmata*/1768 *T. obeliscata*/1769 *T. britannica*
Pine carpet/Grey pine carpet/Spruce carpet

Skinner (1984) gives clear distinguishing marks for *T. firmata,* but *T. obeliscata* and *T. britannica* are more tricky, particularly if they are worn specimens. Tams (1985) gives genitalia illustrations, but Pierce's (1914) are more accurate (Tams's and Pierce's *variata* = current *britannica*).

1795 *Epirrita dilutata*/1796 *E. christyi*/1797 *E. autumnata*/ 1798 *E. filigrammaria*

November moth/Pale november moth/Autumnal moth/Small autumnal moth

E. filigrammaria can perhaps be determined by virtue of its smaller size and less variable markings. However, the four species can only reliably be divided with the help of the genitalia. Skinner (1984) gives distinguishing features for well-marked specimens, but these species vary so much that these markings are not always apparent. Tams (1985) gives male genitalia illustrations, Pierce (1914) gives both sexes.

1811-1857 *Eupithecia*
Pugs

This genus includes some immediately recognisable species (eg. the Lime-speck pug, *E. centaureata*) but also a lot of less distinctive ones. Skinner (1984) gives distinguishing features, as does the book on British Pugs by the BENHS (Anon. 1981), but these often rely on somewhat subjective comparisons of size, colour and wing shape. The BENHS book has a key to the wing markings, and also illustrates the genitalia.

1867 *Aplocera plagiata*/1868 *A. efformata*
Treble-bar/Lesser treble-bar

Skinner (1984) illustrates wing markings for distinguishing these species. *A. plagiata* extends further north to Scotland, and has a Scottish subspecies as well. Tams (1985) gives male genitalia illustrations for both species, but Pierce (1914) only knew *A. plagiata,* for which he illustrates male and female.

1937 *Peribatodes rhomboidaria*/1937a *P. secundaria*
Willow beauty/Feathered beauty

P. secundaria was first recorded in 1981, and thus was not known to South (1961). Skinner (1984) gives underside wing markings to distinguish them. *P. secundaria* is confined to the south-east corner of England, but may have been overlooked elsewhere. *P. rhomboidaria* is common and widespread.

1947 *Ectropis bistortata*/1948 *E. crepuscularia*
Engrailed/Small engrailed

Difficult if not impossible to distinguish by wing markings. *E. crepuscularia* is on the wing from mid-May to mid-June, in the gap between the two broods of *E. bistortata*. Tams (1985) gives genitalia illustrations, as does Pierce (1914).

2080 *Euxoa obelisca*/2081 *E. tritici*/2082 *E. nigricans*/2083 *E. cursoria*
Square-spot dart/White-line dart/Garden dart/Coast dart

These four species can usually be distinguished by careful examination of the markings, but some specimens will need genitalia examination, illustrated in MBGBI vol. 9, and in Pierce (1909, 1952). *E. obelisca* and *E. cursoria* are coastal species, the former chiefly in the south-west, the latter chiefly in the north-east. The other two are more widely distributed.

2111 *Noctua janthe*

Lesser broad-bordered yellow underwing

As Tim Lavery has explained (*Bulletin* **50**: 238), it has now been shown that British and Irish Lesser broad-bordered yellow underwings should be referred to species *Noctua janthe*. Mentzer *et al* (1991) have shown that there are actually three closely related species involved, *N. janthe, N. janthina,* and *N. tertia*. In their paper they give the differences between the moths both in appearance and in the genitalia (Peter Skou (1991) also gives the differences for *N. janthe* and *N. janthina*). It appears that only *N. janthe* is found in the British Isles. However, the distribution of *N. janthina* in Europe extends from Greece (very common) through southern Europe to France, and occasionally as far north as Sweden, so it is conceivable that it might turn up in the UK. *N. tertia* occurs only in south-east Europe.

2219 *Cucullia lychnitis*/2220 *C. scrophulariae*/2221 *C. verbasci*

Striped lychnis/Water betony/Mullein

Of these three species, *C. lychnitis* and *C. verbasci* can be separated as follows (diagram in Skinner, 1984): *C. verbasci* has a distinct discal spot on the hindwing underside, whereas *C. lychnitis* does not (beware MBGBI vol. 10 seems to get this confused, saying on p.47 that *C. lychnitis* both does and does not have such a spot). *C. lychnitis* is much scarcer than *C. verbasci,* and flies later in the year. *C. scrophulariae* is only doubtfully recorded as British, and can only be distinguished from the other two by the genitalia, figured in MBGBI vol. 10, and in Pearce (1909, 1952).

2283 *Acronicta tridens*/2284 *A. psi*

Dark dagger/Grey dagger

Examine genitalia to distinguish; those of the male are relatively easy to examine (diagrams given in Skinner, 1984). The genitalia of both sexes are illustrated in Heath *et al* (1985), Pierce (1909, 1952) and in more detail in MBGBI vol. 10. The caterpillars of the two species are very different.

2297 *Amphipyra pyramidea*/2298 *A. berbera*

Copper underwing/Svensson's copper underwing

This pair of species was separated in 1967, after South's book was last published (1961). Skinner (1984) gives underwing markings to distinguish them; if these markings are not apparent, then the genitalia are illustrated in Heath *et al* (1985), and in MBGBI vol. 10.

2329 *Apamea furva*/2330 *A. remissa*

Confused/Dusky brocade

Skinner (1984) gives appearance differences, also listed in MBGBI vol. 10; if in doubt the genitalia must be examined; they are illustrated in Heath *et al* (1985), in Pierce (1909, 1952; Pierce's *gemina* = current *remissa*) and in MBGBI vol. 10. M.C. Birch (1970) (see also his essay "Eversible Structures" in MBGBI vol. 9) has noted that males of *A. furva* have a complete abdominal "brush-organ" present, whereas males of *A. remissa* have only the lever of this organ. *A. remissa* is commoner and more widely distributed.

2337-2342 *Oligia & Mesoligia*
The Minors

These fall into two groups of three: 2337 *Oligia strigilis* (Marbled minor), 2338 *O. versicolor* (Rufous minor) and 2339 *O. latruncula* (Tawny marbled minor) form one group; 2340 *O. fasciuncula* (Middle-barred minor), 2341 *Mesoligia furuncula* (Cloaked minor) and 2342 *M. literosa* (Rosy minor) form the other. Skinner (1984) gives some distinguishing marks, but due to the great variability of these anyway similar species examination of the genitalia is needed for certainty, especially with the first group (ie. 2337-2339). Tams (1985) and Pierce (1909, 1952) give genitalia illustrations. Heath *et al* (1985) give further detail and a key for the male genitalia, and MBGBI vol. 10 illustrates the genitalia for the first group.

2343 *Mesapamea secalis*/2343a *M. secalella*
Common rustic/Remm's rustic

M. secalella was found to be a new species distinct from *M. secalis* by H. Remm in Estonia in 1983. The only known way of distinguishing the two is by the genitalia of the male (illustrated in Remm's 1983 paper). Both species seem to occur over the same range and habitat.

2357-2360 *Amphipoea*
Ear moths

Another group of four moths, whose identity can only be ascertained by the genitalia. Skinner (1984) gives some differences in appearance, but due to the variability of the moths these features are not always reliable. Tams (1985) gives genitalia illustrations for all except the Saltern ear, *A. fucosa* ssp. *paludis,* which he did not recognise as a separate species. Genitalia for all four are illustrated in MBGBI vol. 10, and in Pierce (1909, 1952; Pierce's *nictitans* = current *oculea,* his *paludis* = current *fucosa* ssp. *paludis*).

2381-2384 *Hoplodrina* + 2387-2389 *Caradrina*

This group includes Uncertain, Rustic, Powdered rustic, Vine's rustic, Mottled rustic and Pale mottled willow. Well-marked specimens can usually be determined, and Skinner (1984) gives the necessary information. The genitalia of the four *Hoplodrina* species are illustrated in MBGBI vol. 10; Pierce (1909, 1952) also has these four, plus *C. morpheus* and *C. clavipalpis* (Pierce's *cubicularis* = current *clavipalpis*).

2439 *Plusia festucae*/2440 *Plusia putnami*
Gold spot/Lempke's gold spot

Skinner (1984) gives diagnostic wing markings, but for confirmation check the male genitalia, illustrated in Heath *et al* (1985; Heath's *gracilis* = current *putnami* ssp. *gracilis*), and in MBGBI vol. 10. *P. putnami* is more restricted in range than *P. festucae,* being confined to southern Scotland and the north and east of England. These species were separated in 1966; South's (1961) illustration of *P. festucae* is actually *P. putnami*.

2482 Schrankia taenialis/2483 *S. intermedialis*/2484 *costaestrigalis*
White-line snout/Autumnal snout/Pinion-streaked snout

Skinner (1984) gives diagrams which should separate well-marked specimens, but for certainty examine the genitalia, illustrated and keyed in Heath *et al* (1985) and in MBGBI vol. 10. *S. intermedialis* was (in 1984) only known from four male specimens taken in Hertfordshire, and it has been suggested that it is in fact the result of a hybrid between *S. taenialis* and *S. costaestrigalis*. *S. taenialis* is found in the southern half of England and Wales, *S. costaestrigalis* occurs as far north as West Inverness-shire.

2488 *Pechipogo* + 2489-2492 *Herminia*
Fan-foot moths

A tricky group of similar-looking moths, but Skinner (1984) gives admirably clear drawings of the differences in wing markings.

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THE EGYPTIAN SCARAB

by K.C. Lewis (3680)

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After my article on the scarab and the ancient Egyptians (*Bulletin* **51**: 243-248) I received a very kind and interesting letter from Dr Yves Cambefort of the Muséum national d'Historie naturelle, Paris, in which he quotes his paper dealing with the subject. *Le scarabée dans l'Egypte ancienne. Origine et signification du symbole*, published in the *Revue de l'Histoire des Religions*, **204(1)**: 3-46 (1987) by Ikka Hanski and himself. In this paper Dr Cambefort states that the Ancient Egyptians did in fact know the first stages of the beetle's development and it was from the pupa stage that they developed their idea of mummification. I was quoting from the book *The Mummy* by E.A. Wallis Budge, and I quote "What views the primitive Egyptians held concerning this beetle we do not know, and judging by the description of its *Scarabaeus sacer* which we find in the works of certain Greek writers, the Greeks cannot have had any real knowledge of this beetle's ways and habits". It was from this statement that I assumed the Greek writers had found no evidence which showed the Egyptians were aware of the early stages of the Scarab. Dr Cambefort also commented on the colour of the sacred beetle: black or green/blue. This is basically due to the fact that there exist two groups of scarabs in Egypt: the sacred beetle proper (*Scarabaeus sacer* and allied species) and the Egyptian scarab (*Kheper aegypiorum*).

On page 246 where I state the scarab was painted black to signify death and rebirth I was quoting from the TV series *The facts behind the Bible stories* by John Romer. Dr Cambefort goes on to say black is the colour of the earth of Egypt and that the ancient name of the country was The Black (Kemit): also the earth itself was sacred, was associated with the sun, and had a somewhat paradoxical solar connotation.

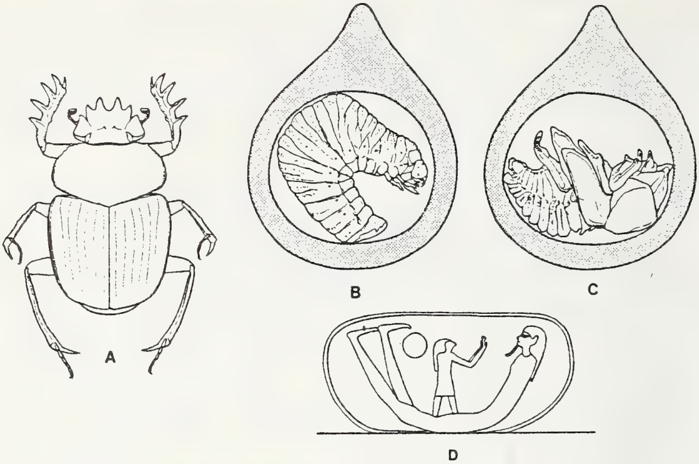

Fig. 3.1. The sacred scarab, *Scarabaeus sacer.* (A; scale: 1cm); the larva (B) and the pupa (C) inside the brood ball; and a drawing from the period of Ramesses VI, depicting Osiris, Horus, and the sun (D). Cambefort's (1987b) interpretation: Osiris (the god of the earth and of the dead) is the scarab larva (note the body form), from which his son Horus (the god of the glorious sun, but also the new scarab) emerges, with arms bent to the shape of the scarab's forelegs. Osiris and Horus are inside the "brood ball".

I am indebted to Dr Cambefort for his kind comments concerning my article. It is encouraging to know that professionals can find time to comment on articles by amateurs in such a nice way and should spur some of our younger writers to put pen to paper.

Dr Cambefort has kindly given me permission to print the illustrations and copy relevant to my article from his paper and these are printed above and below.

> "The nesting behaviour of one dung beetle, *Scarabaeus sacer,* greatly impressed the ancient Egyptians, perhaps because this beetle united three elements of significance to the Egyptians: the sun, the soil, and the cattle. By a remarkable coincidence, this large beetle, which was the most obvious insect attracted to cattle dung, reminds one of the sun in its morphology (the head is similar to the rising sun; Fig. 3.1) and in its behaviour (a dung ball is shaped early in the morning, and it is rolled across the plain, like the sun travels across the sky). The beetle's development in the underground nest chamber, culminating in the appearance of the new scarab from the nymph, also resembles the daily resurrection of the sun, a promise of new life to the Egyptians (Fig. 3.1). Cambefort suggests that the mummy and the mummy-like god Osiris were inspired by the beetle's pupa (the nymph), and what else were the pyramids but idealised dung pats!"

MOTHS IN MY BACKYARD, OR FURTHER OBSERVATIONS OF BRITISH INSECT LIFE (EXCLUDING COCCINELLIDAE)

by Helen Marcan (3763)
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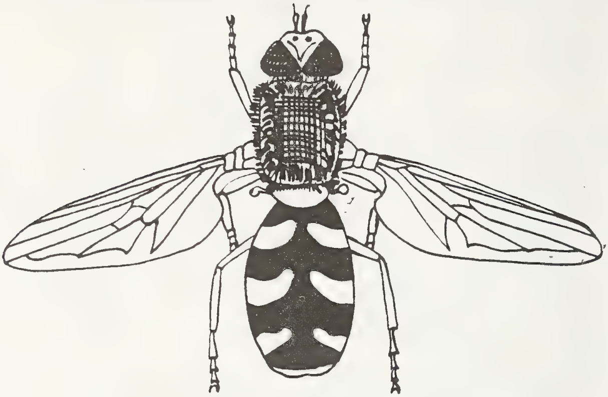
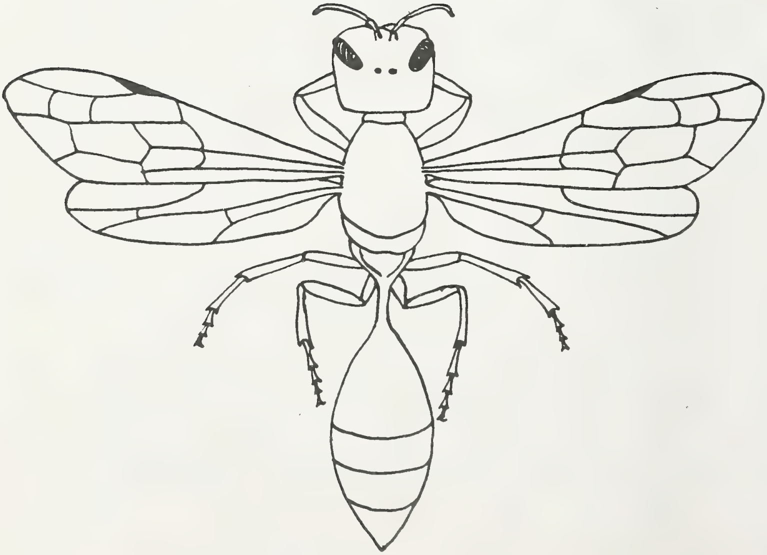
The insect order Lepidoptera has always attracted a considerable following of enthusiasts, devotees and plain collectophiles. Nowadays, however, butterflies are perhaps the most strongly promoted insect group, being represented amongst the interests of AES members and also warranting further protection under the auspices of a completely separate organisation, namely "Butterfly Conversation". Since the Lepidoptera as a group comprises moths as well as butterflies, some of the widespread enthusiasm for studying and conserving butterflies has been attached also to moths, most particularly amongst the members of this Society. Therefore the revival currently being enjoyed by moths on a local level in the form of moth trapping sessions for recording purposes was not altogether unanticipated.

Many of our Society's younger members develop their interests in entomology primarily through association with the showy and spectacular features of butterflies. Subsequent ventures into the "field" of moths may soon follow, for some of the most conspicuous Lepidoptera such as Five and Six-spot burnets regularly encountered in the Chilterns on flowerheads of field scabious, are actually day-flying moths. A moth trapping session with mercury-vapour lamp is undoubtedly an ideal way of studying the moth population, and can be quite exciting for a youngster avid with curiosity for the diversity and abundance of moth species around. The strange glow in a neighbour's garden or down at the Country Park can also excite the curiosity of adults and occasionally a police patrol, but their sobriety is incomparable to a child's first sight of a Peach-blossom moth, Buff arches and even Burnished brass. Recognition and naming of these all too infrequently-encountered species is no problem, given sufficient familiarity with the colour illustrations of a good book of moth identification.

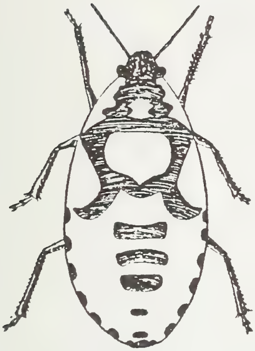
The world of butterflies, moths and their caterpillars might provide sufficient excitement and interest; after all, specialisation in any form is commendable if not a prerequisite for individuals intending to follow a lifetime's study and perhaps a career in entomology. But a young child follows his or her own inclinations, according to circumstances and the parental environment. In my case, anything that flew, crawled or just "lurked" was fair game and I soon assembled a reasonable collection of some of the more common insects representative of the different orders, including Lepidoptera.



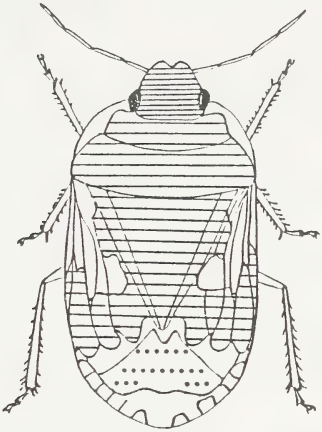
Scaeva pyrastri



Pemphredon sp.



Sehirus bicolor (larva)



Sehirus bicolor (adult)

In the following species list of moths, the order follows Skinner's Colour Identification Guide (1984). The Diptera or two-winged flies and Heteroptera (bugs) were identified using books of the Wayside and Woodland series by Colyer and Hammond (1968) and Southwood and Leston (1959) respectively. Naming of the Hymenoptera amongst the collection was rather more problematic, but some attempt at a reasonable identification was achieved using the keys provided in the Hymenopterist's Handbook and also by reference to the new edition of Collins Guide to Insects of Britain and Western Europe (Chinery, 1986). All records pertain to the years 1960-1970 at the previously described site (Marcan, 1988), and drawings of some representative species have also been included. These are shown with an asterisk in the species list.

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SPECIES LISTS

MOTHS

Hepialidae
Ghost swift
Orange swift

Lasiocampidae
Drinker

Drepanidae
Chinese character

Thyatiridae
Peach blossom
Buff arches

Geometridae
  Geometrinae
Large emerald
Small emerald
  Sterrhinae
Small scallop
Small fan-footed wave
Single dotted wave
Small dusty wave
Silky wave
  Larentiinae
Garden carpet
Dark-barred twin-spot carpet
Common carpet
Pretty chalk carpet
Small rivulet
Yellow shell
July highflyer
Chevron
Lead belle
Dark spinach
Shaded broad bar
Toadflax pug
Lime speck pug
Bordered pug
Wormwood pug
Tawny speckled pug
Common pug
  Ennominae
Magpie
Canary-shouldered thorn

Arctiidae
  Arctiinae
White ermine
Buff ermine
Ruby tiger
Cinnabar

Noctuidae
  Noctuinae
Flame
Flame shoulder
Shuttle-shaped dart
Least yellow underwing
Lesser broad-bordered yellow underwing
  Hadeninae
Bright-line brown eye
Campion
Clay
  Acronictinae
Marbled beauty
  Plusiinae
Spectacle
Silver Y
  Hypeninae
Snout
  Amphipyrinae
Mouse
Common rustic
Cloaked minor
Dusky sallow
Straw underwing
Lesser spotted pinion
White spotted pinion
Common wainscot
Brown rustic

MICROMOTHS
Small magpie
Garden pebble
Mother of pearl
Gold fringe
White plume moth
Agriphila tristella

DIPTERA
  Syrphidae (hoverflies)
Xylota segnis
Pyrophaena granditarsa
Syrphus balteatus
Syrphus ribesii
Helophilus pendulus
Platychirus peltatus
Scaeva pyrastri
Syritta pipiens
Merodon equestris (Narcissus fly)
Volucella pellucens
Volucella bombylans
Episyrphus balteatus
Eristalis tenax (drone fly)
  Tephritidae
Euleia heraclei (celery fly)
  Tachinidae (parasitic flies)
Tachina fera
  Calliphoridae
Sarcophaga stercoraria (flesh fly)
  Muscidae
Mesembrina meridiana
Scatophaga stercoraria (yellow dung fly)
  Culicidae
Bibio marci (St. Mark's fly)
  Stratiomyidae
Sargus iridatus (soldier fly)
  Tabanidae
Haematopota pluvialis (cleg-fly)
HEMIPTERA
  HETEROPTERA

Sehirus bicolor (pied shield bug)
Picromerus (brown shield bug)
Nabis rugosus (common damsel bug)
Anthocoris nemorum (common flower bug)
Deraeocoris ruber (capsid)
Heterotoma merioptera (capsid)
Stenodema calcaratum (grass bug)

  HOMOPTERA (froghoppers)
Cercopis vulnerata
Philaenus spumarius
Graphocephala fennahi (Rhododendron froghopper)

HYMENOPTERA (excluding sawflies)
  Aphidae (bees)
Megachile sp. (leaf-cutting bee)
Osmia rufa ?
Coelioxys inermis (solitary bee)
Apis mellifera (honey bee)
Bombus terrestris (bumble bee)
  Sphecidae (digger wasps)
Pemphredon ?lugubris
Mimesa sp.
Mellinus ?arvensis
Crabro ?cephalotes
  Ichneumonidae (Ichneumon flies)
Pimpla sp.
Lissonota sp.
Diplazon laetatorius
Amblyteles armatorius
Netelia testaceus
Ophion luteus
  Vespidae (social wasps)
Vespula vulgaris
  Chrysididae (ruby-tailed wasps)
Chrysis ignita

ORANGE-TIPS IN GLASGOW

by Frank McCann

I am pleased to say that the Orange-tip butterfly (*Anthocharis cardamines*) continues to flourish in my area of Scotland. In May this year I saw two in Glasgow. The first was a male which flew into my garden and rested briefly on the leaf of a burdock plant in the flower border. The second I saw about a week later while I was travelling by bus along Duke Street.

BOOK REVIEW

The Illustrated Encyclopaedia of Butterflies by John Feltwell. Blandford Press, 1993. 288pp. Illustrated with coloured plates on all pages. A4 Hardback. Price £25.00.

This is a beautifully produced book, printed, alas, in Hong Kong. H.L. Lewis (1973) and P. Smart (1975) have already presented earlier encyclopaedias along similar lines and of necessity the coverage must be limited to examples from each genus. They cannot be specific enough as books for positive identification, acting in most cases as a guide to approximate status. For the non-specialist this may be sufficient and help with visits to butterfly houses or general field observation.

Following brief chapters on morphology, migration and conservation, the book consists of the descriptions of individual species, each illustrated by a set specimen, photographed in colour at the Allyn Museum, Florida — not to scale but with the wingspan indicated in the text. These generally are very good. The Hesperiidae have been omitted and the species are dealt with in three large families — Papilionidae, Nymphalidae and Lycaenidae, the genera being in alphabetical order. There are some anomalies; while some genera are represented by one or two examples, others have a large number, e.g. *Colias* with twenty-one and *Oeneis* with ten, although the plates would not be sufficient for positive identification. The Satyrinae have been included in the Nymphalidae which introduces a few strange bed-fellows. There are minor errors of fact in some of the observations, e.g. the genus *Aricia* do not all have blue males and brown females; *Minois dryas* is not a mountain species, being common at lowland habitats for most of its range. Nomenclature remains a major hazard with *Clossiana* and *Boloria* doubts; *Nordmannia* is sunk for *Satyrium* and *Lycaena dispar* becomes *Thersamolycaena dispar*. So much for international agreements! But all in all, it is a lovely book to browse through if of limited scientific value.

PWC

HUMMINGBIRD HAWKMOTHS COMMONEST IN WORST SEASON

by Dominic Rey (7972)

Until the time of writing (23rd August 1993) I have found it a pretty poor season, the worst, in fact, I have known in 20 years. However, I made my best sighting of numbers of Hummingbird hawkmoths (*Macroglossum stellatarum*) when down at Portland on 2nd August: six in one area with another down the road. At the same time there seemed to be a total lack of Painted ladies (*Cynthia cardui*) and a very thin supply of Red admirals (*Vanessa atalanta*). The weather, especially in August, has been rubbish and in 20 years it has been my poorest season for Small tortoiseshells (*Aglais urticae*) and Common blues (*Polyommatus icarus*) as well.

A SUMMER BROOD OF *AGRIUS CONVOLVULI*

by Alan Winterflood (7739).

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On 19th June 1989 I received a few dozen Convolvulus hawkmoth (*Agrius convolvuli*) ova; these were sent to me by post. They were put in a sealed plastic container on some tissue and the inside of the lid was sprayed with a fine mist of water to provide humidity. The container was kept in a shady room.

The weather was very warm at the time, at least 25°C and on 20th July the ova started to hatch. Prior to this I had collected some shoots of field bindweed (*Convolvulus arvensis*) and also some hedge bindweed (*Calystegia sepium*). The newly-hatched larvae were put in a separate plastic container with a few shoots of each bindweed species. Most of the larvae took to the larger leaved *C. sepium* more readily than the smaller tough leaved *C. arvensis*.

I started off with 26 baby larvae and by 26th July I had only 18 left. I decided to feed these only with the *C. sepium* and I usually gave them tender shoots with a few separate larger leaves thrown in for good measure. A small amount of tissue was kept under the bindweed to absorb condensation from the leaves. The container lids were ventilated with holes at this stage. Tissue was stretched under the lids to absorb further condensation and prevent the small larvae escaping.

The larvae increased rapidly in size, moulting every few days. It soon became necessary to separate them into several containers, usually two larvae per one litre plastic jar. By 28th July some larvae had entered their fourth instar although most were still in their third.

On 31st July I decided to transfer all fourth instar larvae into a massive glass-fronted heated incubator. Long shoots of bindweed were draped down the insides of the incubator, being tied to the top and sides with plastic twine. The ends of the shoots trailed around the floor of the incubator. The temperature outside had dropped to 22°C during the day and around 16°C at night, so I turned on the heating in the incubator to about 28°C.

Bindweed shoots around two metres long were collected nearly every day and these were placed in a bucket of water under a bench in the conservatory. They were never stood in water while the larvae were feeding from them. I have known this procedure to kill many types of larvae and *convolvuli* are particularly susceptible. Sometimes the bindweed wilted rapidly in the warmth of the incubator even though the stems were pushed into deep sand but I stocked up with plenty in reserve.

By 1st August one *convolvuli* larva had reached fifth instar and the size increase of all larvae reaching this stage of maturity was very rapid.

By 9th August I had eleven full grown larvae together in the incubator. Several stunted ones were kept in large jam jars. Full grown larvae were generally between 9-11cm in length. Most of the larvae would cling to the stems of bindweed which hung from the sides and roof of the incubator. All full grown larvae were of the brown variety with orange stripes; tail horns were black tipped with red.

The temperature in the incubator was kept to around 23-28°C during most of the larval period and a 10W bulb (filament type) was switched on for around 12 hours per day. The bulb was in the roof of the cage.

By 9th August most larvae were wandering around on the floor of the cage in order to pupate somewhere. These larvae were put into ventilated wooden boxes, approximately four per box. The pupation boxes had clear plastic lids in the top for easy viewing. Damp peat filled all boxes to a depth of around 10cm. These boxes were placed on top of an incubator and left alone in a temperature of around 24°C.

Harvesting the pupae on 18th August revealed eleven good ones and five failures from stunted larvae. The length of the remaining pupae varied from 53-60mm. I had four females and seven males.

After harvesting the pupae, they were placed side by side on top of slighty damp peat in a wooden box and put in the incubator after covering them with several layers of tissue. The temperature in the incubator was kept between 21-26°C and the pupae were never sprayed directly with water. When the peat seemed dry I would lightly spray the top of the tissue and the inside walls of the pupation box and incubator. This would rapidly create humid conditions. From 27th August onwards the incubator and tissue on top of the pupae were usually sprayed twice a day and some of the pupae were found to be soft when inspected. On 29th August the pupation box was moved to the upper part of the incubator where the warmth was more consistent. Tissue paper was pinned to the walls of the incubator interior.

From 2nd September the wing cases on some of the pupae had begun to show the mottled grey patterns of the wings underneath and the first male emerged on 4th September around 9.30pm. He climbed to the top of the incubator, stopping just below the roof to perform the normal wing expansion process. Five males and two females were out by 5th September and on this day I set up my small flight cage. This was a two foot square wooden-framed cube covered with white nylon netting. It had a zip opening down the front. The base of the flight cage was solid to accommodate plants in pots etc. All emerged moths were put in the flight cage together with a vase of phlox flowers which stood in the centre of the cage floor.

At around midday on 7th September I force-fed most of the young *convolvuli* moths with a liquid honey solution; 75% honey, 25% water.

Most of the moths were fairly quiet and did not struggle very much while I fed them. On 8th September I repeated this exhausting task of hand-feeding the whole stock of *convolvuli* since the weather was very warm and they had been active during the night.

The last and largest female emerged during the night of 8th September and I was quite pleased that no cripples had been produced from any of the pupae. After 2am on 9th September there was a lot of commotion in the flight cage and many males tried to pair with the three females which were resting. The females did not accept them on this occasion. Later, during the morning, I made a point of force-feeding all females. On 10th September a worn looking female was paired at 1.45am. She was already several days old and the pairing took place at a temperature of 18°C. During the afternoon she was isolated and placed in a separate incubator with a few strands of bindweed. Although several ova were laid on the leaves and sides of the cage, these proved to be infertile. No other ova were laid by this female.

The largest female was seen pairing at 1.45am on 12th September. This was the one which hatched on 8th September. On 13th September another worn female was paired at 2.30am. Later during the day I suspended a few bindweed shoots from the top and sides of the flight cage interior pushing the ends of them into jars of water.

From the night of 14th September onwards, the large female which had paired on 12th September was seen to be quite active. She would hover around the inside of the cramped flight cage stopping here and there to deposit ova amongst the bindweed leaves several times on most nights.

The room containing the flight cage had begun to get cool at night and I noticed that temperatures below about 20°C made the egg-laying females lethargic. I increased the flight cage temperature to 24°C and this solved the problem fairly well. I made a practice of hand feeding most moths every two days. I also placed nicotiana flowers in the flight cage and the occasional moth would hover around these and probe them with its proboscis, managing to dodge around most of the hanging bindweed with great skill.

Although I had three *convolvuli* pairings only two of these produced fertile ova. Ova laid on 14th September started to hatch from 19th September onwards. I had managed to pot up some rooted shoots of *C. sepium* in good time to feed the newly hatched larvae; these were transferred from the foliage in the flight cage onto the potted bindweed as soon as possible.

It was difficult to get some of the potted bindweed to stop wilting in the heat of the incubator. This problem was overcome by placing plastic bags over the baby bindweeds and cutting a few holes in the tops for ventilation. Prior to this, the bindweed stems had to be supported with sticks to prevent them from falling over. I wrapped tissue around the base of the stems to mop up excess condensation and lastly, I tied plastic twine around the outside of the bag bases securing the tissue underneath making them escape proof. This procedure for rearing the young *convolvuli* larvae solved a lot of problems. I found I could conveniently leave the baby larvae alone for many days before they needed more potted bindweed. Frass which collected at the bottom of the plant bags was removed quickly by untying the bag bases and letting it fall on the floor of the incubator where it could be removed at a convenient period.

This second brood of *convolvuli* started pupating from 5th November onwards. The quality of the bindweed was generally very poor around this time of the year and I had to search hard to find any fresh clumps to feed the whole stock. Most larvae were undersized but produced well formed pupae. Sadly, these did not diapause properly and all pupae rapidly coloured up from about 30th November onwards. Most of these died since the moths were unable to emerge from their pupae in the low temperatures of winter storage.

In conclusion, *convolvuli* larvae need high temperatures and can withstand very high humidity if kept in clean conditions. Baby larvae are best kept on potted *C. sepium* which must be prepared several days in advance. This is not easy to do but well worth the effort. Try to have half a dozen or more potted bindweeds standing by for convenience. Many full grown larvae will consume bucket-loads of bindweed. It is best to keep it fresh by cutting up a few huge clumps, take them home and submerge them in water as soon as possible. There should be no need to dry out the foliage if it is shaken briskly and hung up to dry in a warm well ventilated breeding cage. It will dry out rapidly under these conditions. Hanging bindweed is more hygienic since it does not usually get covered with frass from feeding larvae. Larvae may die if fed on waterlogged foliage. As with many species do not spray the pupae directly at any time. Just keep them warm and humid.

Egg-laying females must be kept very warm. I think night temperatures should be above 20°C. Force-feed adults every one to two days and keep flowers in the flight cage to increase activity of the moths.

I have no information in regard to the diapause of the pupae during the winter since I only had a summer brood, but I would be interested to know how this could be accomplished if it is possible. Perhaps the day length and temperatures of the larva rearing conditions have some bearing on this problem. (*A. convolvuli,* a noted migrant, is primarily a North African species, continuous brooded, does not diapause, and rarely if ever survives a European winter — Editor.)

WASPS VERSUS DRAGONFLIES — ROUND TWO

by Frank Botterill (6227)

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Dr Mike Majerus's account of wasp predation of a dragonfly (*Bulletin* **52**:67) prompts me to write of a similar occurrence.

In August 1992 my family holiday consisted of a trip to France, with a week spent as guests of Stella and Brian Smith in their holiday cottage in Charente.

This proved to be an excellent place for us to spend our holiday, with plenty of space for two teenagers to explore in complete safety whilst the older generation indulged in sedate country walks. Most days commenced with a leisurely breakfast for four, following which the youngsters would disappear for a dip in the outdoor pool. My first task then was to examine the contents of my two light traps and log the catch. During this time, my wife would set off down the lane and into the disused quarry (now so overgrown that it is only accessible through Brian's efforts in clearing and maintaining pathways through the regenerating birches) admiring the Swallowtails, Adonis blues, Jersey tigers and Hummingbird and Bee hawkmoths, all of which were plentiful, especially on buddleia.

One morning, having emptied the traps before my wife returned from her walk, I set off down the lane to meet her; but on entering the woodland, I immediately became aware of a sound which I could not identify. After a few seconds I decided it must be a powerful jet of water somewhere in the grass — a feasible proposition since the swimming pool is fed by hose pipe from spring water emerging on the higher ground. I searched for a break in a nearby pipe but this led me away from the sound so I retraced my steps.

Eventually, the source of the sound was discovered in long grass by the side of the path; a large dragonfly was lying there beating its wings furiously to produce the loud rustling sound, whilst a large wasp fed avariciously from a hole gnawed in the dragonfly's thorax just above the wing bases. I brushed the wasp away several times, but it was intent on its meal and returned immediately with much intimidatory buzzing. The dragonfly was clearly incapacitated, for though the wing movement did not seen to be impaired, nothing else moved and it made no attempt to rise. Perhaps it had first been partly paralysed by a sting, and I guessed that the wing movement would soon cease anyway as its attacker chewed further into its thorax. I decided to leave the wasp to its grisly meal and carried on into the wood.

I soon met my wife on her way back, and also Brian who was out mowing the pathways, and we returned together to the scene of the crime. I was surprised to find that the wasp had gone; but the dragonfly, as I had expected, was now still, so I lifted it out of the long grass and on to the path where it was easier to view. However, within seconds of this, the wasp returned straight to the site, only to find its meal gone. Apparently perplexed, it made a thorough search of the area where its prey had been, carefully examining about a 20cm square before gradually widening its orbit and re-discovering the ill-fated dragonfly, now perhaps 50cm away. Not unnaturallly, my wife was less than enthusiastic about the spectacle as the wasp resumed feeding, so once more we left the scene.

In retrospect, I regret not having tried to photograph the encounter, since, being neither Odonatist nor Hymenopterist, I was unable to positively identify the two insects involved. I suspected that the wasp was actually a hornet, but Brian was not in agreement with this. The dragonfly may well have been a specimen of *Cordulegaster boltonii* — but are there other *Cordulegaster* species in this part of France? And how had the encounter occurred? Large as the wasp was, it is hard to imagine that it should deliberately seek out such a large prey item. On the other hand, it is difficult to believe that a dragonfly would intentionally try to seize a wasp. These questions must remain unanswered.

And there is one final puzzle. Some time later — maybe a couple of hours — our son and daughter returned from a morning in the pool reporting that they had seen a dead dragonfly in the water. Their first intention had been to bring it back for me to see, but noticing a large hole in its thorax, they had merely scooped it off the water and thrown it away. How did it get there — a distance of perhaps 50 metres? Was it dropped by a wasp? Hardly credible. Or by a bird perhaps? Or was it a different dragonfly?

If the latter is true then maybe there is a colony of dragonfly-killing wasps in Charente. Perhaps Brian and Stella Smith could advise on that.
(Perhaps they are that rather largish wasp, *Dolichovespula media,* not uncommon in France and now established in southern England. - Editor)

WICKEN FEN DECLARED NNR

Wicken Fen — the National Trust's first nature reserve, a Grade 1 Site of Special Scientific Interest and one of the most important "wetland" nature reserves in Western Europe — has been declared a National Nature Reserve (NNR) by English Nature. The new NNR is now the best surviving remnant of the Great Fen Levels of East Anglia. It is a rare example of traditional land use based upon ancient drainage systems effective until the 19th century. Wicken Fen is currently the focus for three projects within English Nature's Species Recovery Programme — the Fen violet, Fen ragwort and the Swallowtail butterfly.

TAKE NOTE OF THE HUMBLE SPIDER

by James Wright (9531)

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Insects are, without doubt, a most interesting Class of invertebrates to study. Even so, taking into account the large number of families and wide amount of diversity that make up the Class, there are certain Orders that receive the lion's share of attention, ie. Lepidoptera, and this is reflected in the overall amount of literature available on the subject. Indeed, there almost seems an unwritten law that interest in a given family is reflected in the inverse square of the amount of information available on that family. The same would appear to be true in other areas of Natural History, Ornithology for instance, with those groups considered "more difficult" being left to the more curious of our ilk. Look through any issue of the *Bulletin of the Amateur Entomologists' Society* and this is easily qualified. The more information available about a given family increases the amount of interest, which in turn increases the amount of information. But what of those families and orders that appear to get "neglected", for want of a better word?

Though always interested in Natural History *per se,* I became interested in looking at insects seriously quite by accident. I wanted something that I could study literally "in my own back garden" and decided upon this diverse Order as a consequence. Whilst I soon settled down to read as much as I could on the subject (thank God for Chinery!) my attention was soon diverted away when I came across "a most unusual insect", found whilst looking through my hedgerow. I was soon to discover I had made a most gross mistake; the "insect" I had found was not an insect, but one of the most common spiders I could have ever come across — the Garden spider *Araneus diadematus.* How could I have gone through life for nearly thirty years without noticing such a fascinating beastie? I had spent long summers, during my childhood, rearing all kinds of caterpillars in jam-jars, watching ants frantically going about their lives, yet never somehow come across spiders! This, in itself, has always intrigued me. However, it had happened; I had discovered my first spider and my fate was sealed. Now all I had to do was go and find out all I could about them down at the library — but in reality it was not to be that simple. The "inverse square law of information" soon took its toll. Though I could find many books on insects (even then there was a strong bias toward the Lepidoptera!), I came across only one specifically on spiders. Some six hours later, having read Bristowe's masterly *World of Spiders* (now out of print and a collector's item), I realised I had found my niche and that, from now on, I would be solidly involved with spiders. That has been the case ever since. Whilst my interest has remained for insects in general, it is spiders that have been my amateur study and with which most of my free time is spent. This has turned out to be the right choice and has provided me with many highly rewarding memories, moments and feelings of real contribution. But why?

Like them or loathe them, spiders are seldom ignored by those who notice them. As Table 1 shows, there is no shortage of species (630), and each family is as diverse as any you will find in the insect world. This diversity, as in the insects, is a greater part of the secret of their success.

Most people associate spiders with making webs to catch their prey, yet there are relatively few families that use this strategy compared with those that do not. Indeed, web-building is probably a relatively recent adaptation (geologically speaking) toward catching their prey. It is strongly suggested that most of the insects only took to flying to get away from the predation of spiders and the like; "Why did the fly fly? Because the spider spied her!".

Table 1. Make-up of the British spider list.

FAMILY	GENERA	SPECIES	FAMILY	GENERA	SPECIES
Atypidae	1	1	Thomisidae	6	25
Eresidae	1	1	Philodromidae	3	16
Amaurobiidae	1	3	Salticidae	15	34
Dictynidae	5	14	Oxyopidae	1	1
Uloboridae	1	2	Lycosidae	8	38
Oonopidae	1	2	Pisauridae	2	3
Dysderidae	2	4	Argyronetidae	1	1
Segestriidae	1	3	Agelenidae	8	17
Scytodidae	1	1	Hahniidae	2	7
Pholcidae	2	2	Mimetidae	1	4
Zodaridae	1	2	Theridiidae	13	53
Gnaphosidae	11	32	Nesticidae	1	1
Clubionidae	2	23	Tetragnathidae	2	9
Liocranidae	6	13	Metidae	3	8
Zoridae	1	4	Araneidae	15	30
Anyphaenidae	1	1	Theridiosomatidae	1	1
Heteropodidae	1	1	Linyphiidae	107	273

Red Data Book and Nationally Notable spider species list make-up.

SOURCE/STATUS	SPECIES	%
RDB1 Endangered	22	3.49
RDB2 Vulnerable	31	4.92
RDB3 Rare	26	4.12
RDBK Insufficiently known	7	1.11
NN Na	42	6.66
NN Nb	97	15.39
RDB Total	86	13.65
NN Total	139	22.06
Total combined	225	35.71

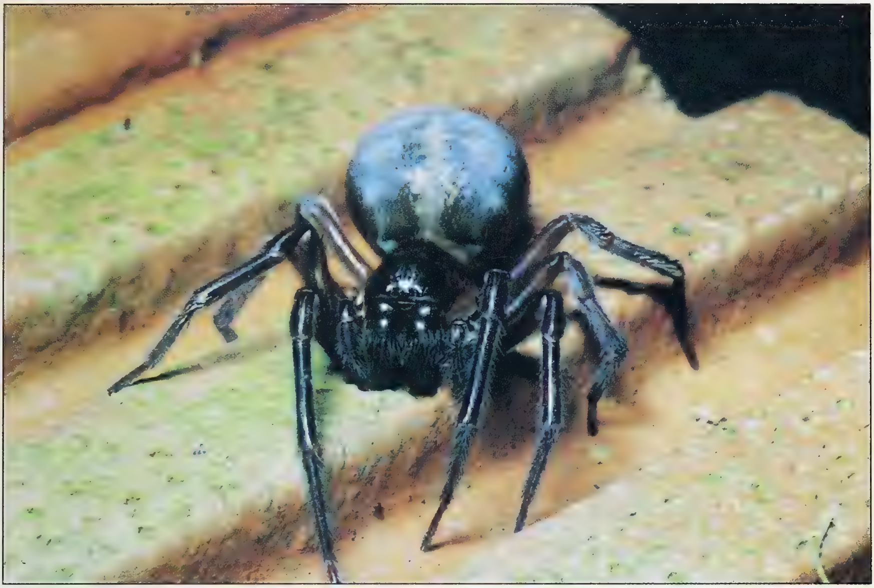

Fig. 1. *Amaurobius ferox* (Walkenaer)

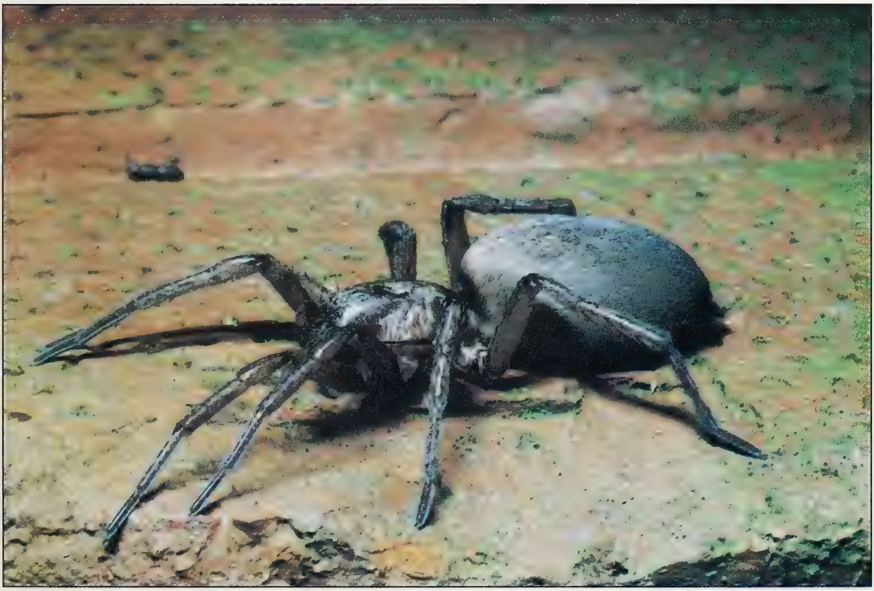

Fig. 2. Female *Drassodes cupreus* (Blackwall)

PLATE GG

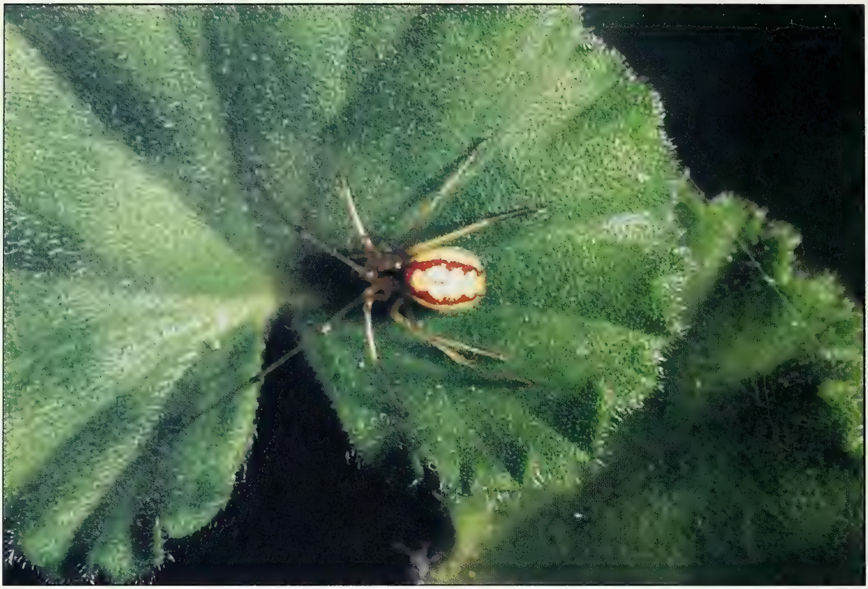

Fig. 3. *Enoplognatha orata* (Clerk), July 1990

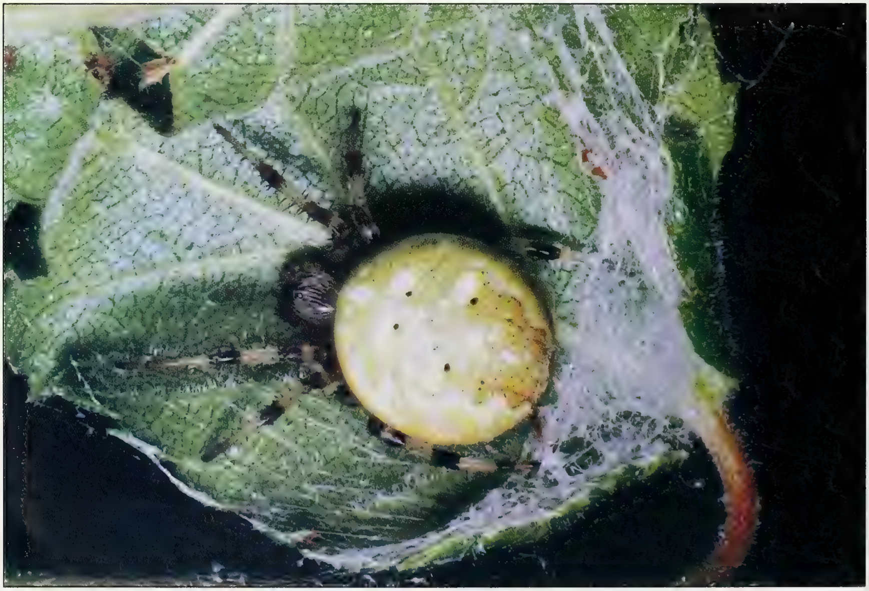

Fig. 4. Female *Araneus quadratus* (Clerk)

PLATE HH

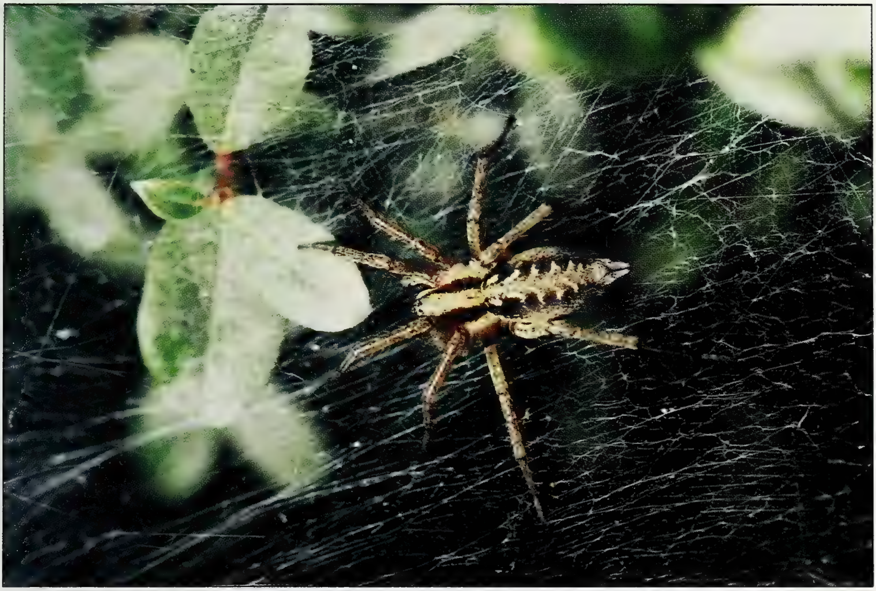

Fig. 5. Female *Agelena labyrinthica* (Clerk), July 1992

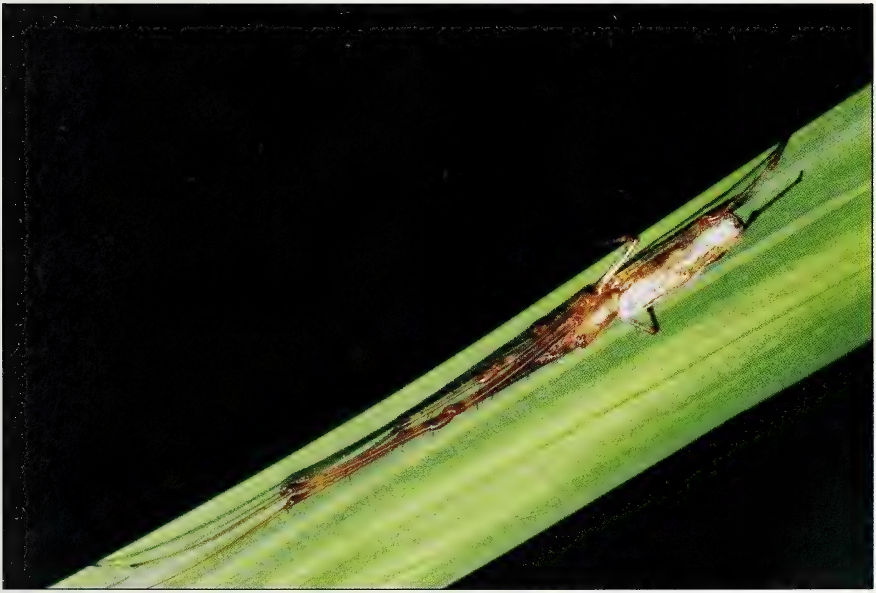

Fig. 6. Female *Tetragnatha extensa* (L.)

PLATE II

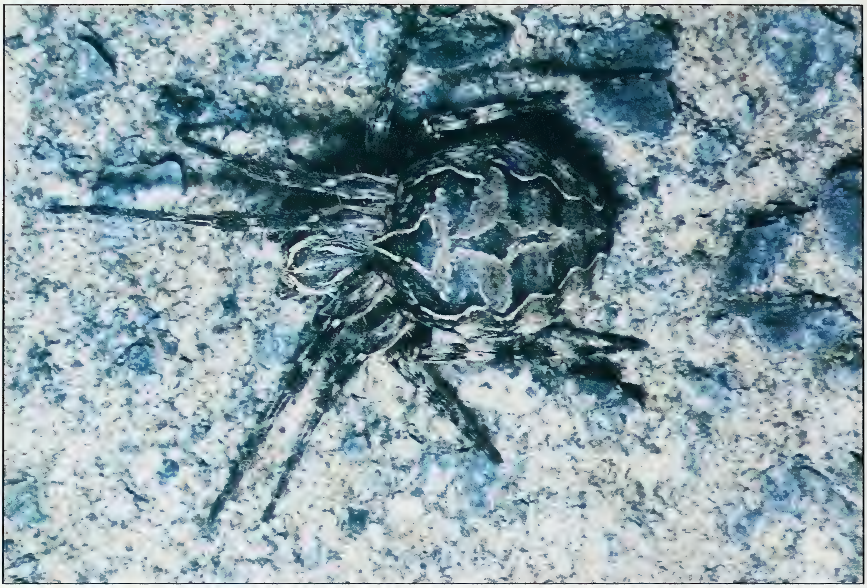

Fig. 7. Female *Lariniodes sclopetarius* (Clerk)
on concrete bridge.

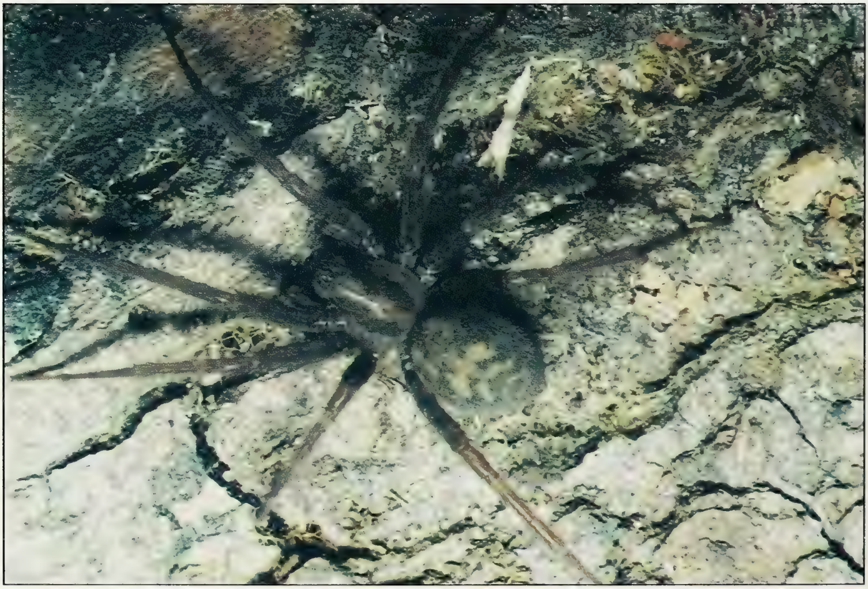

Fig. 8. A *Tegenaria* species.

PLATE JJ

The "arms race" has continued apace ever since. There are spiders that actively hunt down their prey, others that are essentially "sit and wait" type predators, without the use of webs, and within these strategies run the whole gamut of mimicry, deception and downright deceit! Each family represents a different kind of strategy, or a mixture of strategies, that make them remarkable animals to watch and study.

I could go on about the virtues of spiders, but it would take a book to do so. Therefore, to take a short cut, let me recommend to you the book that got me started, which should be available from your library, *The World of Spiders,* by W.S. Bristowe, New Naturalist No. 38. In it you will find just how remarkable these animals are for yourself and, maybe, find another object of fascination as you do with the insects.

A number of interesting species that I have photographed are shown on Figures 1-8 on the colour plates of this issue. These are:-

PLATE GG Fig. 1. *Amaurobius ferox* (Walkenaer); Fig. 2. A female of *Drassodes cupreus* (Blackwall): PLATE HH Fig. 3. *Enoplognatha ovata* (Clerk); Fig. 4. A female of *Araneus quadratus* (Clerk): PLATE II Fig. 5. A female of *Agelena labyrinthica* (Clerk); Fig. 6. A female of *Tetragnatha extensa* (L.): PLATE JJ Fig. 7. A female of *Lariniodes sclopetarius* (Clerk) at rest on a concrete bridge; Fig. 8. A *Tegenaria* species stretched out at rest and perhaps looking more like a stick insect than a spider!

To summarise, spiders are not without their rarities or specialists. In the British Isles we have 630 species (with others being slowly added at intervals), a great many of which we do not know a great deal about. From a purely amateur viewpoint, this is an opportunity not to be missed, as anyone has a chance of making a contribution to what is not already known. Even some of our more common species are not fully understood and documented, which leaves the door wide open for someone to come along and find out more.

The idea of this small article has been to alert you to the possibility that you, like I, may be overlooking something of immense importance. For those of you who have already discovered the world of spiders, I apologise, but then you will be fully aware of what I mean. I am not attempting to turn you away from that in which you are already interested; I am, however, asking that you take more note in the future of the humble spider!

If I can be of any assistance to anyone who may be interested in spiders, then do not hesitate to get in touch. I am sure you will not be disappointed if you do turn the occasional eye to watching these fantastic creatures.

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BRITISH ARACHNOLOGICAL SOCIETY

The British Arachnological Society exists to promote the study of arachnids in Britain and throughout the world. Membership is open to all persons interested in arachnology, and currently consists of over 650 members and subscribers worldwide, both amateur and professional. Members participate in spider identification courses, ecological surveys, field meetings, lectures and conversaziones, as well as informal, local meetings arranged through the membership list. A postal library of around 6000 reprints of scientific papers, books and photographic slides is available to members resident in Britain.

The *Bulletin* is published three times a year and contains scientific papers on taxonomy, behaviour, life histories, morphology, histology, physiology, ecology and phenology of arachnids. The *Newsletter,* circulated with the *Bulletin,* acts as a forum for the exchange of information on all arachnological matters. Contents include short articles, distribution records, study techniques, international news and book reviews. A supplement to each *Newsletter* contains stop-press notices of events/activities and requests for advice and information. A loose-leaf Society Handbook is being built up, and is issued in sections as these become available.

There is a flourishing Spider Recording Scheme, sponsored by the Biological Records Centre at Monks Wood and the Society. Most recorders are also members of the Society.

The annual subscription for UK members is £15.00; further details and application form available from: S.H. Hexter, BAS Membership Treasurer, 71 Havant Road, London E17 3JE.

BOOKS RECEIVED

Anglian Water — Conservation, Access and Recreation 1992-93. In two parts, 66pp. in all, illustrated in colour.

This is a well presented report of the activities of the Water Company in regard to its management of the many ecologically sensitive sites either in its ownership or affected by its commercial activites in East Anglia where the Broads, relict fens and rivers harbour so many important species of our flora and fauna. This aspect of the water companies' work in Britain has become very important and needs every encouragement. PWC.

THE MOTHS OF MEPAL — ADDITIONS FOR 1992 WITH SOME LATER RECORDS

by Rob Partridge (8956)

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The original list of the moths that I had recorded in and around the village of Mepal in Cambridgeshire appeared in AES Bulletin 51, pages 293 to 297. In 1992, more systematic trapping and recording took place with the result that the total number of species positively identified increased by 99 to an overall total of 202. This compares with the total of 248 species recorded during two years of intensive light trapping and four years of more casual recording by Paul Waring in the village of Werrington. In *The Butterflies and Moths of Werrington, Peterborough,* Waring (1992) comments that he would expect such totals from "any suburban or rural area . . . where there are well established gardens with native trees and shrubs." This describes well the habitat available to moths in Mepal.

The actinic light was used throughout the season; from the 15th August, a Robinson mercury vapour trap was also run in the garden. Several interesting species were found as adults or larvae but sugar was disappointing compared to the previous season.

As with the previous list, the order is that used by Skinner (1984). In the account below, when not stated, the year 1992 is to be understood.

COSSIDAE

Goat moth (*Cossus cossus*). In June, two likely looking empty pupal cases were brought from a friend's garden. In early July, a worn adult was found at rest in the same location. On 14.2.93 a large larva was brought to me from this garden, having been dug up during gardening operations. The likely foodplant here is old, pollarded willows. Paul Waring (in prep.) comments that this appears to be a favoured tree, particularly in low-lying situations where the trees are stressed by high water tables. This particular site is almost annually flooded by the waters of the Ouse Washes.

LASIOCAMPIDAE

Oak eggar (*Lasiocampa quercus quercus*). In early April a small larva was brought to me by a neighbour — she had found it on an ash tree. I did not recognise it and it refused to feed on this foodplant until it appeared on the point of death. In desperation, I offered several alternatives and finally hawthorn was accepted. The larva then grew rapidly and I eventually realised what it was from a photograph. The pupa produced a fine male on the 7th July.

My neighbour planted a *rugosa* hedge this spring and the larva may have arrived on it but she is quite certain that she had given me the caterpillar before the hedge was delivered. Occurrence of this unexpected species on an unacceptable foodplant remains a mystery.

SATURNIIDAE

Emperor moth (*Saturnia pavonia*). My son brought home an injured female which he found in the school playground. She laid more than 80 eggs before dying. More than 50 larvae reached half-size before being placed out on suitable hawthorn bushes. The only record in three years.

THYATIRIDAE

Figure of eighty (*Tethea ocularis octogesimea*). One to light on 20.5.92, another on the late date of 18.8.92.

GEOMETRIDAE

Small blood-vein (*Scopula imitaria*). One to light, 7.7.92.

Lesser cream wave (*Scopula immutata*). One netted while circling light on 10.7.92.

Single dotted wave (*Idaea dimidiata*). A few specimens in July and August, the first on 7.7.92.

Riband wave (*Idaea aversata*). Common from early June, the form ab. *remutata* being more frequent than the typical.

Shaded broad-bar (*Scotopteryx chenopodiata*). One at light on 8.7.92.

Common carpet (*Epirrhoe alternata alternata*). In small numbers to light in May and August.

Dark spinach (*Pelurga comitata*). Only a single, rather dark example came to light on 10.7.

Barred straw (*Eulithis pyraliata*). Appeared to light in good numbers from 9.6.92 but not seen at all the previous year.

Common marbled carpet (*Chloroclysta truncata*). Certainly not common; seen in ones and twos during August, including one very dark specimen.

Barred yellow (*Cidaria fulvata*). One only, to light, 29.6.92.

Juniper carpet (*Thera juniperata*). First taken on 12.11.91; three more in 1992, the latest on 4.11.

November moth (*Epirrita dilutata*). Appeared regularly from 22.10.92 to m.v. light but not seen last year to actinic. The majority were uniform dark grey with little marking.

Small rivulet (*Perizoma alchemillata*). One to light 26.6.92.

Marsh pug (*Eupithecia pygmaeata*). One beaten from hawthorn on 20.5.90 in the nearby village of Witcham.

Freyer's pug (*Eupithecia intricata arceuthata*). Several taken from 29.5.92. Larvae found on *leylandii* in early October.

Currant pug (*Eupithecia assimilata*). Two were recorded, on 30.7 and 27.8, both to light.

White-spotted pug (*Eupithecia tripunctaria*). Two came to light on 24.5.92.

Grey pug (*Eupithecia subfuscata*). Noted in small numbers in June.

Tawny speckled pug (*Eupithecia icterata subfulvata*). First seen to light on 30.7.92; several more followed.

Bordered pug (*Eupithecia succenturiata*). One well-marked specimen came to light on 22.6.92.

Shaded pug (*Eupithecia subumbrata*). One at light on 26.6.92.

Plain pug (*Eupithecia simpliciata*). Several came to light after the first, on 10.7.92.
V pug (*Chloroclystis v-ata*). One to light on 7.7.92.
Double-striped pug (*Gymnoscelis rufifasciata*). Regular to light in April and August, with one seen on 12.9.92.
Treble-bar (*Aplocera plagiata plagiata*). Three fresh specimens noted, the first on 4.6, the last on 18.8. I have not found the recognised foodplant, St. John's Wort, locally but cultivated *Hypericum* is common in gardens.
Seraphim (*Lobophora halterata*). One only came to light on 3.6.92.
Magpie (*Abraxas grossulariata*). Common in hedgerows although only one was found in the light traps.
Clouded border (*Lomaspilis marginata*). First seen on 19.6.92. Fair numbers came to light after that.
Scorched wing (*Plagodis dolabraria*). One to light on 3.6.92.
Large thorn (*Ennomos autumnaria*). Two males taken, 20.8 and 5.9, both heavily marked.
Scalloped oak (*Crocallis elinguaria*). A larva collected in early spring emerged on 19.6.92. Others came to light in good numbers.
Feathered thorn (*Colotois pennaria*). Seen in good numbers at light between 3.10 and 6.11.
Peppered moth (*Biston betularia*). Several noted in June, including two close to f. *insularia*.
Mottled beauty (*Alcis repandata repandata*). Two appeared to light on 29.6 — thereafter this species appeared in ones and twos.
Common wave (*Cabera exanthemata*). One came to light on 22.6.92.
Clouded silver (*Lomographa temerata*). A single to light on the above date.
Early moth (*Theria primaria*). Three between 15.1 to 25.2, all to actinic light left on all night.
Light emerald (*Campaea margaritata*). First recorded on 25.5. Common throughout the season, including several in late August. All to light.

NOTODONTIDAE

Iron prominent (*Notodonta dromedarius*). A single came to light on 8.8.92.
Coxcomb prominent (*Ptilodon çapucina*). One in May, the 7th, and two on 16.8.92.

LYMANTRIIDAE

Vapourer (*Orygia antiqua*). Larvae collected in the summer began to emerge on 5.8.92.
Yellow-tail (*Euproctis similis*). Larvae found on plum trees in the garden in early April. The adult came to light regularly in the season.

ARCTIIDAE

Common footman (*Eilema lurideola*). First taken at light on 22.6.92; then appeared in considerable numbers.
Garden tiger (*Arctia caja*). Several larvae found in late May produced adults.
White ermine (*Spilosoma lubricipeda*). Taken regularly in the light trap from 20.5.93.

Buff ermine (*Spilosoma luteum*). Several from 30.5.92. to light.
Ruby tiger (*Phragmatobia fuliginosa fuliginosa*). First seen flying in sunshine on 2.5.92 but did not appear in the light trap until 8.7.92, continued to turn up until 8.9.92.

NOCTUIDAE

White-line dart (*Euxoa tritici*). Suspected earlier but on 25.8.92 a clearly marked specimen was identified.
Garden dart (*Euxoa nigricans*). One only, to light on 5.8.92.
Flame (*Axylia putris*). A single on 18.8.92 — a date that is between those suggested by Skinner.
Flame shoulder (*Ochropleura plecta*). Several taken in May and June.
Broad-bordered yellow underwing (*Noctua fimbriata*). This species was first noted on 7.7.92; six more arrived up to the end of July followed by a late singleton on 25.8.92.
Lesser broad-bordered yellow underwing (*Noctua janthe*). Two were seen, 8.8. and 15.8
Least yellow underwing (*Noctua interjecta caliginosa*). Two again, of a local species; 5.8. and 15.8.
Ingrailed clay (*Diarsia mendica mendica*). one was found on sugar, 30.7.92.
Double square-spot (*Xestia triangulum*). Several came to light after 22.6.92.
Six-striped rustic (*Xestia sexstrigata*). One example came to light on 20.8.92.
Dot moth (*Melanchra persicariae*). Another singleton, on 26.6.92.
Light brocade (*Lacanobia w-latinum*).One to light on 5.6.92.
Bright-line brown eye (*Lacanobia oleracea*). This appeared regularly between 7.5 and 26.9; the second brood is said to be infrequent.
Broom moth (*Ceramica pisi*). Three were taken at light between 29.5 and 9.6.
Broad-barred white (*Hecatera bicolorata*). One at light on 26.6.92.
Tawny shears (*Hadena perplexa perplexa*). One to light on 30.5.92.
Varied coronet (*Hadena compta*). Two, both on 22.6.92.
Clay (*Mythimna ferrago*). A very bright individual come to light on 26.6.92.
Smoky wainscot (*Mythimna impura impura*). The first was netted as it visited *verbena* flowers in a hanging basket — others were seen to do this subsequently. Common to light well into September; for example, seven on 18.9.
Shark (*Cucullia umbratica*). Typically single-brooded in June and July, but a fresh specimen came to light on 18.8.
Brindled green (*Dryobotodes eremita*). A well-marked, quite green individual came to light on 18.9.92; those I had taken in Norfolk were less colourful. Only the second official county record.
Dark brocade (*Blepharita adusta*). Four came to light in total; 29.5, 30.5 and two on 9.6.
Pink-barred sallow (*Xanthia togata*). Three; all were found on foliage the morning after light trapping — 25.9 and 26.9.
Poplar grey (*Acronicta megacephala*). Several taken at light, the first on 7.5.
Miller (*Acronicta leporina*). One only, to light on 26.6.
Marbled beauty (*Cryphia domestica*). First seen at light on 22.6. Thereafter, it appeared in good numbers well into August.

Copper underwing (*Amphipyra pyramidea*). Two were present in the trap on 18.8.
Bird's wing (*Dypterygia scabriuscula*). First noted on 2.8; several more came to light this month.
Brown rustic (*Rusina ferruginea*). Only two were seen to light — 30.5 and 4.6.
Straw underwing (*Thalophila matura*). Two appeared on 28.7, followed by good numbers in the next month.
Light arches (*Apamea lithoxylaea*). The first was found in the kitchen on 22.6. This turned out to be common species to light, with others noted at sugar.
Large nutmeg (*Apamea anceps*). First noted on 29.6, this species came frequently to light in July.
Rustic shoulder-knot (*Apamea sordens*). A larva found in the garden and reared on the roots of couch grass produced this species on 21.5. Adults came to light in double figures throughout the flight period.
Cloaked minor (*Mesoligia furuncula*). Good numbers came to sugar from 30.7 but few were seen at light.
Common rustic (*Mesapamea secalis*). First seen at light on 29.6; thereafter observed in considerable numbers.
Dusky sallow (*Eremobia ochroleuca*). Four arrived on 28.7. Seen regularly through August.
Flounced rustic (*Luperina testacea*). 5.8 saw the first specimen. Thereafter, this was often the most numerous species in the trap, forty or fifty at a time.
Crescent (*Celaena leucostigma leucostigma*). Two came to sugar on 30.7.92.
Mottled rustic (*Caradrina morpheus*). Good numbers came to light in June.
Silky wainscot (*Chilodes maritimus*). One very fresh specimen came to actinic light on 29.6 — a local species.
Cream-bordered green pea (*Earias clorana*). Another singleton to light, this time on 26.6.
Green silver lines (*Pseudoips fagana britannica*). One only, to light, on 3.6.
Oak nycteoline (*Nycteola revayana*). One of the first moths taken in the year, one came to light on 17.3.
Golden plusia (*Polychrysia moneta*). One of this very attractive species was found on the garage wall by my son after I had carefully examined it — this is a favourite site for moths to settle when the light trap is being run.
Spectacle (*Abrostola triplasia*). This species was first seen on 19.5. It then came to light regularly and the second brood was often attracted to light in some numbers — for example, nine on 20.8.
The Herald (*Scoliopteryx libatrix*). The first record was on 22.4 to light; another came to sugar on 4.5.
Snout (*Hypena proboscidalis*). One was netted flying over honeysuckle on 22.6. The species was then seen occasionally up to 21.8, when one was seen feeding on ripe elderberries.

Many thanks to Barry Dickerson for identifying the genitalia of the Currant pug. Paul Waring confirmed the identity of the Juniper carpet and Dark spinach. Thanks also to Raymond Revell, the Cambridgeshire recorder, for his comments on the status of various species within the county.

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Note: *The Butterflies and Moths of Werrington* is now being serialised in parts in Butterfly Conservation news. The relevant issues are **51**: 59-62 and **52**: 48-56 (1992).

BOOK REVIEWS

Lepidoptera of North-east Essex by B. Goodey and J. Firmin. A4 paperback, pp.109, 13 line drawings. Colchester Natural History Society 1992, and available from them care of J.P. Bowdrey, 14 Ryegate Road, Colchester CO1 1YG. Price (incl. p&p) £4.95.

This is an excellent local list which covers both the macro- and microlepidoptera. The book starts with a series of short chapters covering historical notes, wildlife and conservation, the changing status of north-east Essex lepidoptera, and the giant brick-built Bradwell light trap run for many years by A.J. and S.F.J. Dewick. In a local list these chapters are an unexpected bonus and make very interesting reading. I particularly enjoyed hearing of the exploits of William Harwood, the professional entomologist and author of the Victoria County History, who invented that superior method or rearing larvae, the sleeve. Harwood was almost certainly among the first to see *Gortyna borelii,* Fisher's estuarine moth, mistaking it for a form of *G. ochracea* (*flavago*), the Frosted orange. His description of it includes the passage ". . . a very fine form, differing from all other British specimens, has been found on the coast between Harwich and Walton-on-the-Naze." There are also accounts of the discoveries of *Coleophora fuscicornis* and the formal discovery of *G. borelii* by J.B. Fisher in 1968.

The majority of the book is devoted to a systematic list of species occurring in the study area. For each species the ten kilometre squares in which it has been recorded are listed, together with an abbreviated status and sometimes a few words of comment. Many species are given six-figure map references to indicate where they have been recorded particularly commonly. Notable Essex specialities merit six to ten lines, although most species are given one or two lines only. The list appears to be as complete as human endeavour can make it and the authors are to be congratulated on the thoroughness of their efforts. The thirteen pages of monochrome line illustrations add some interest to the text, are well drawn, and are of good size.

My only criticism must be the choice of such a large and ugly typeface for the work. The typeface resembles that of an old-fashioned typewriter, which makes the text difficult to read and is wasteful of space. Why, when desktop publishing is freely available in every high street, has a publication been produced of which Caxton himself would have been ashamed? If a sensible typeface had been selected the book could have been produced in A5 size rather than the ungainly A4, and (this is the crunch) there could have been twice as much information on each species.

Colin Hart

Lepidoptera of the Midland (Birmingham) Plateau: a concise history 1890—1990 by John M. Price. A5 pbk. pp 277. Birmingham Natural History Society (Proceedings Vol 26 Nos 3 & 4) 1993. ISSN 0144-1477. Price £7.50 (£8.00 post free from BNHS, c/o 10 Bishopton Lane, Stratford-upon-Avon, Warwickshire CV37 9JN).

The general quality of this book is average; the whole page structure has staples holding it together and the page margins vary from wide in the outer pages to narrow, but not unduly so, in the centre pages. The printing leaves a lot to be desired but in the main it is legible.

The first few pages contain a foreword and history with a page showing an old record card that was at one time used to collate the information. The next pages are devoted to the principal contributors who helped the author with the book, followed by the contributors to the survey; among these are some very famous and well known names. A small acknowledgement follows which honours the pioneers of this survey.

Nomenclature follows Kloet & Hinks (1972) amended by Bradley & Fletcher (1974; 1979; 1983; 1986), Emmet (1987) and Agassiz (1987).

The author has tried to be as accurate as possible and entries are based strictly on substantiated records. Comparisons have not been drawn between the differing time periods. In order to keep the book as concise as possible, details of foodplants and other scientific information have been much reduced.

The list itself showing 1307 species is well presented and shows the Latin names which are followed by the synonym where applicable with the English name in brackets and the numbers on the right hand side. Where no clear pattern exists, the author has specified the records showing the initials of the person responsible and the general area where the species was seen. The micro moths are more summarily dealt with because of the lack of recordings but there is more information regarding the macros for the opposite reason. The last few pages are devoted to an index of localities and reference works consulted. In the main, the book should be a useful addition to anyone contemplating recording or collecting in this area.

Roy McCormick

BREEDING *GRAMMODES BIFASCIATA* (PETAGNA, 1787) (LEPIDOPTERA: NOCTUIDAE, OPHIDERINAE)

by Aldo Catania (7680) and Paul Sammut

Zernio, 135 Pembroke, St. Julians, Malta, GC.

One of the rarer species of Ophiderinae, indigenous to the Maltese Islands, is *Grammodes bifasciata.* It was first recorded from Bahrija Valley in 1979 by S. Schembri. From then onwards it has been observed regularly and a healthy but small population of this beautiful noctuid still exists today at the same locality. However this species seems to have a very restricted distribution and does not occur elsewhere on the island. Bahrija Valley is a small, permanent fresh-water spring.

On 28th June 1991, while beating for microlepidoptera, we disturbed two specimens of *G. bifasciata,* a fresh male and a slightly worn female. We decided to keep the female alive and try to work out its life cycle.

It was fed on diluted honey and on 3rd July it started laying. Ova were laid in the corners of the container or inside crevices formed on crumpled paper purposely provided for egg laying. Eggs are brown and round with flattened tops.

A brief look in Seitz provided the possible foodplants: plants from the families Polygonaceae, Rosaceae or Cistaceae. Now Bahrija Valley happens to house the largest population of *Polygonum salicifolium* and naturally we decided to try it.

Eggs started hatching on 6th July. Larvae were black and when disturbed they would fall and hang by silk threads. Foodplant was provided and the newly hatched larvae started feeding. By the 11th a total of seventy eggs had hatched and the first hatched larvae had attained a length of about 10mm. They feed mostly at night and are relatively easy to raise. Last instar larvae measure about 70mm. They are mostly brownish grey with wide creamy lateral lines. The underside is black with orange markings. On the 20th a larva was seen to stitch two leaves together and pupated in about 24 hours.

The first moths started to hatch on the 29th. Within ten days all of the odd 70 pupae hatched, a 100% success!! In an attempt to obtain a second brood, a number of pairs were released in a small greenhouse and potted foodplant was provided. The experiment was successful and hundreds of eggs were laid singly on leaves, leaf buds and between the axils of the leaves. On hatching, a very large proportion of the larvae were returned to Bahrija Valley in an attempt to strengthen the wild population and the few larvae kept at home pupated in September and hatched in late spring.

DISCOVERY OF A BREEDING POPULATION OF *ZIZEERIA KNYSNA* TRIMEN, 1862, ON THE MALTESE ISLANDS

by Aldo Catania (7680) and Paul Sammut

Zernio, 135 Pembroke, St. Julians, Malta, GC.

In 1992 we were fortunate enough to discover a fairly large breeding population of the African grass blue, *Zizeeria knysna* Trimen, 1862 which hitherto had only been known in the Maltese Islands from occasional single specimens. We observed females ovipositing on *Polygonium arenastrum* Boreau.

On 9th November 1992, one of us (AC) visited a site in the limits of San Gwann, which promised well for collecting and photographing butterflies. This November was the warmest since 1948 and on this particular day there was a variable breeze with the thermometer reading 23°C and humidity standing at 66%.

Pieris brassicae, Pieris rapae, Pontia daplidice, Colias croceus, Aricia agestis, Polyommatus icarus and *Cynthia cardui* were still on the wing, although in very small numbers.

At about 10.45am, in a particular area where you would not expect to find anything living except flies (this place looks more of a marshy site and the smell from the nearby cattle farm is unbearable) a small blue butterfly, immediately recognised as *Zizeeria knysna* was netted. Soon after a fresh female was also taken. In about an hour several more specimens of *knysna* all in very fresh condition were noted and two more pairs were collected for breeding. This population was estimated to contain from 80 - 100 specimens. One female was observed ovipositing on the flower buds of *P. arenastrum* the dominant plant species in the area. In fact a few ova were also collected from flower buds.

We visited this place several times up until 7th December and the population remained fairly stable. However a search in the immediate vicinity yielded only a single record (? an escapee) at approximately 200 metres away from the population site. Heavy rains after this date changed the site into a large pool of water, with much of the foodplant completely submerged and no more *knysna* could be observed.

We visited other localities where *P. arenastrum* grows, such as Wied il-Ghasel (Mosta), St. Paul's Bay, Wied Qirda (Qormi), Wied is-Sewda (Attard) and Chadwick Lakes (Rabat) but only in the last mentioned locality did we record a single battered female. We also visited areas where *knysna* had been recorded previously but again only a single specimen was recorded from Ghadira Bay.

Before the discovery of this small but thriving population, *knysna* had been recorded for Malta only from single specimens which are listed in Table 1.

Table 1. Previous records of *Zizeeria knysna* from Malta.

DATE	LOCALITY	RECORDER
iii.66	Wied Zembaq (Birzebbugia)	V. Portelli
iii.78	Ghadira Bay	G. Bonett
14.x.90	Wied Qirda (Qormi)	A. Catania & M. Fenech
9.xi/7.xii.92	San Gwann	A. Catania & P. Sammut
15.xi.92	Ghadira Bay	A. Catania & M. Fenech
5.xii.92	Chadwick Lakes (Rabat)	P. Sammut & A. Catania

The females that I collected oviposited freely in captivity and although a variety of the known foodplants were offered, they laid eggs only on *P. arenastrum*. None were laid on either *Oxalis pes-caprae* nor on any *Medicago* spp. The eggs are light blue in colour and their sculpture resembles that of the Common blue, *P. icarus*. They are laid singly on the flower buds and are consequently hard to detect.

At the time of writing (June 1993) I already have chrysalids and I propose to publish a detailed paper on the life-cycle when they eclose.

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FIFTH EUROPEAN CONGRESS OF ENTOMOLOGY

This Congress, hosted by the Royal Entomological Society, is due to be held in the University of York from 29th August to 2nd September 1994. Themes to be discussed include: Insect life histories; management and restoration; ecology of plant and leaf hoppers; insects as indicators of environmental quality; technology in entomology; biodiversity; management of pests and beneficial insects. There will also be Poster displays. Details and booking forms, either to attend, display a Poster or give a talk, are available from our President, Dr Duncan Reavey, Department of Biology, University of York, York YO1 5DD.

CONCERN FOR THE WHITE-LETTER HAIRSTREAK AT AVERSLEY WOOD, SAWTRY, CAMBRIDGESHIRE

by John Chance (9446)

11 Louthe Way, Sawtry, Huntingdon, Cambridgeshire PE17 5TR.

Throughout the 1970s and 1980s, under the relentless advance of Dutch Elm disease, the White-letter hairstreak (*Strymonidia w-album*) was reduced from three strong colonies, to a precariously held single location in Aversley Wood, Sawtry, Cambridgeshire. The wood covers some 152 acres, is a designated SSSI, and has been owned by the Woodland Trust (WT) since 1982.

The butterfly was recorded in small numbers up to 1988, but none were seen over the following three years and the last colony was feared lost. It was therefore with considerable pleasure that the butterfly was once again seen in June 1992. Pleasure however, soon turned to frustration, when in November, I found the restricted area of elms in the process of being reduced by a local Conservation Volunteer Group (CVG) who were busy implementing the owner's "management plan".

I immediately made a telephone call to WT Head Office at Grantham, expressed my reasons for concern, and received an assurance that the supplied information would be forwarded to the Woodlands Operations Officer. I felt both assured and content that I had done my bit in the interests of the butterfly.

It was therefore with considerable dismay that some two weeks later I found the CVG continuing to remove healthy elms as part of an otherwise laudable ride maintenance and scalloping scheme. Conversation with the CVG Leader, (who was equally gutted when I enlightened him for the reason for my concern) revealed that information from my initial telephone contact with the WT had from either oversight, inefficiency or perhaps general lack of interest in the natural history content of the site, not reached the CVG.

Fortunately the CVG had stored rather than burnt the felled timber, and over the following few weeks were able to find 23 ova (at the rate of approximately three ova per hour!) which were doomed to die on the ground in the coming spring. All but one of the ova were found on the classic "girdle scar" position on the underside of twigs, the one exception being located at the base of a terminal bud. The collected ova will be reared on an elm tree overhanging my garden, and any successful emergent imagines will be returned to the wood.

Although no great quantity of ova was found on the felled elms, I am hopeful that the colony will maintain its precarious hold in Aversley Wood, but in less fortunate circumstances the Woodland Trust's ill-informed management plan could have ruined the White-letter hairstreak's last chance of survival at this location.

Paul Waring's Presidential Contribution, (*Bulletin* **51**: 257-263) therefore appealed to me as a timely invitation to enlist the AES's help to impress on the WT the importance of informed and sensitive management planning, to protect the habitat of one of our rarer local butterflies.

(I wrote to the WT explaining my equal concern and informing them that I intended to publish Mr Chance's letter and offering to publish their comments on the matter. Weeks later I was rung up by one of their staff, who expressed concern, apologised for the delay and informed me that he was contacting the person responsible for Aversley Wood and would write to me when he had a report. More weeks went by and I wrote again. Some months have now passed without a word from the WT and I feel I should not delay any longer in publishing Mr Chance's concern. — Editor).

A PROBABLE, BUT UNCONFIRMED, RECORD OF THE WHITE PROMINENT, *LEUCODONTA BICOLARIA* IN SCOTLAND

by Peter Willis (5251)

I work on a small estate of some ten acres in Perthshire. On 11th July last year I was busily engaged at one of our cold frames when I noticed a white moth settle on the woodwork at the far end. Thinking this was probably an Ermine, or something similiar, I finished what I was doing before giving it my prompt attention. Imagine my amazement on seeing that it was in fact a White prominent (*Leucodonta bicoloria*). I had no suitable container handy but managed to catch it in my hands with the intention of bringing it back to my cottage in order to photograph it. Unfortunately, being scared that I might damage it, I did not hold it securely enough and it escaped.

The situation around the estate could be described as open woodland, having in addition to pine and other conifers, a fair amount of birch, oak, beech, alder and ash, with a burn running through the grounds. The elevation is about 500ft. with higher hills beyond. The date is later than that given by South, but we do seem to be some three or four weeks later for most species than would apply further south.

(In view of the Bloxworth snout, an even scarcer species, having just been found breeding in Devon — see page 279 — I see no reason why this prominent should not also have established itself and I understand that one or two of our members intend looking for it. There was also a well-illustrated report in the *Daily Mail* of 25th September 1993 of a number of insects that had established breeding colonies over here recently as a result of our hotter summers and warmer winters, although their chief concern was that one of them was a poisonous spider! — Editor)

BLOXWORTH SNOUT FOUND IN DEVON IN 1991

by Dominic Rey (7972)

In 1991 I went with a friend to Devon, in order to observe Jersey tiger moths (*Euplagia quadripunctaria*) and we certainly saw some of them and also larvae of the Red admiral (*Vanessa atalanta*) feeding on pellitory-of-the-wall (*Parietaria diffusa*). As I helped my friend collect some of these I disturbed a well-worn female moth which was still distinguishable as a Bloxworth snout (*Hypena obsitalis*). The following year (1992) another friend of mine visited the site and obtained a series by rearing them.

CONFIRMATION OF A BREEDING COLONY OF THE BLOXWORTH SNOUT, *HYPENA OBSITALIS* IN SOUTH DEVON

by David C.G. Brown

Jackson's Drive, Charlecote, Warwick CV35 9EW.

Following the discovery of a very worn example of the Bloxworth snout by Dominic Rey in late August 1991, I had two objectives to achieve in 1992. First, to establish whether this rare immigrant was breeding at the site and, secondly, to photograph the adult and obtain a female from which to breed.

As the summer of 1992 had been particularly warm and the season well in advance, I decided to travel to Devon much earlier than originally planned. I joined up with my friend Alec Koloj (9141) who was at the time enjoying his family holiday in Devon. On 21st July we arrived at the site where Dominic had found the first specimen the previous year. This was an enclosed coastal footpath with pellitory-of-the-wall (*Parietaria diffusa*) growing on both sides. The evening was clear, calm and warm — ideal conditions for dusking and in due course at dusk *obsitalis* soon appeared fluttering slowly over the foodplant. Within a short time we had seen ten of them and caught two females in order to obtain eggs. The species did not show much inclination towards our MV lights and only two visited our three 80W lamps operated from dusk to dawn.

The females duly laid eggs and the larvae proved extremely easy to rear in plastic boxes. They fed up rapidly on stinging nettle (*Urtica dioica*) and a large number of moths had emerged by the end of August. As Alec was visiting Devon again at the time he was able to release many back at the site where we obtained them.

EARTHWATCH EUROPE: CALL FOR RESEARCH PROPOSALS

Earthwatch Europe invites proposals for field research for inclusion in its 1995 or 1996 programmes. Earthwatch supports basic and applied field research at post-doctoral level in the Life, Earth and Human

Sciences and in the Humanities and encourages interdisciplinary proposals. The proposed fieldwork must be labour-intensive and able to make good use of teams of non-specialist field assistants drawn from the membership of Earthwatch. As well as providing volunteers, Earthwatch awards grants to projects included in their programme. The size of the grant varies according to the number of volunteers required to carry out the Project; it is financed from contributions made by these volunteers and awarded on a per capita basis, on average £550 per volunteer. Total grants paid to Project Investigators range between £5000 and £50,000. The grant should cover the cost of accommodation, local transport and food for the volunteers during their field activities; volunteers pay their own travel to and from the rendezvous point. The Earthwatch grant also covers travel to and within the site by the Project leaders; any sum remaining after these costs have been met is available to support other field research costs. Earthwatch takes into account the scientific strength of each proposal when awarding grants as well as the numbers who are likely to volunteer for that Project.

Earthwatch wishes to encourage research concerned with understanding processes which shape the environment at the local, regional and global level, projects that contribute to improved management of threatened habitats and ecosystems, research on biodiversity and studies that identify sustainable use of natural resources. All proposals are subjected to rigorous peer review.

Preliminary proposals for fieldwork in spring and summer of 1995 are requested before 14th February 1994. Please write for further details to: Dr John Craig, The Science Director, Earthwatch Europe, Belsyre Court, 57 Woodstock Road, Oxford OX2 6HU.

UNCOMMON SYRPHID FOUND IN GWYNEDD, WALES

BY M.O. Hughes (3612)

I was recently sorting out some specimens of the families Muscidae and Tachinidae (Diptera) when I came across a grey and yellowish specimen which I thought might belong to the sub-family Phaoniinae (Muscidae). However, on closer inspection this specimen was clearly not of that family nor Calliphoridae nor Tachinidae. Noticing the "vena spuria" (false vein) I then concluded it was a Syrphid as it did not fit into any of the other families of Diptera in Colyer and Hammond's *Flies of the British Isles*. (1951).

I was amazed and pleased to discover that it was a female *Brachyopa scutellaris* (Diptera: Syrphidae); a species I have never encountered before. I would like to add, therefore, that recorders of Syrphidae *only* may very easily overlook the Genus *Brachyopa* as they are so deceptively like some species of the Muscidae at first glance.

I know that this species has been recorded from Clwyd but am uncertain as to whether it has yet been recorded from Gwynedd. It was taken in Bodysgallen Woods, Deganwy, Llandudno, Gwynedd, Wales on 17th May 1992.

IZAAK WALTON — ENTOMOLOGIST, NOT JUST FISHERMAN

by Dr Peter Edwards MRCGP, FRES *(6871)*

Haddenham Low House, Oxford Road, Dinton, Buckinghamshire HP17 8TT.

Four hundred years ago this year on 9th August Izaak Walton, England's most famous fisherman, was born. The fishing fraternity, of which I count myself one, are celebrating the event with two fairs at Chatsworth and Broadlands. Walton's fame undoubtedly rests on his well-known book *The Complete Angler* probably the most famous of all fishing books, which sits on most fishermen's bookshelves and probably, like mine, remains unread. This is unfair as it is quite fascinating to read, as I have now discovered that Izaak Walton was, like many other fisherman after him, a keen Entomologist. This may well have been mentioned in journals previously but if so I am unaware of it and in any case will bear repeating to celebrate Walton's 400th birthday.

In the chapter headed "The Third Day" he discusses the various sorts of trout of which there are "Several kinds considered but by few men; for they go under the general name of Trouts" — even in the sixteen fifties fisherman then, like Entomologists now, were concerned by regional variations. "Nay, the Royal Society has published lately that there be thirty and three kinds of spiders; and yet all, for all I know, go under the general name of Spider". There is little doubt that this rather testy remark is referring to Martin Lister's first paper on spiders published in the *Philosophical Transactions of the Royal Society*. This indeed includes a list of 33 spiders including three harvestmen and a red mite. This list he later increased to 38 for his great *Tractus*. All this erudition about Lister comes, of course from the recent translation from the Latin of Lister's work, published, and partly translated by Basil Harley — a fascinating book even for the non-Arachnologist.

During the chapter "The Fourth Day", Walton talks about baits for the trout. The third type of bait is flies — "Too many for me to name or for you to remember". He then adds delightfully that "The little living creatures with which the sun and summers adorn and beautify the river banks and meadows for the recreation and contemplation of us anglers" — and Entomologists too.

He discusses the various shapes of caterpillars. "Some are horned in the head, some in the tail, some have none". Some have a motion "not unlike the waves of the sea". He describes what I take to be pre-pupating wanderings of an ermine moth caterpillar in a way that cannot be bettered and calls him a Palmer or Pilgrim Worm. "He will not content himself. . . with any certain place of abode. . . but will boldly and disorderly wander up and down and not endure to be kept to a diet or fixt to one particular place". I like the thought of a bold and disorderly caterpillar. It was not until 1758 that Linnaeus called the White ermine *lubricipeda* "swift of foot", presumably for the same reason.

He then goes on to describe two caterpillars which take his fancy and without doubt these are Privet hawkmoth (*Sphinx ligustri*) and the Puss moth (*Cerura vinula*). The *ligustri* "was found on a privet hedge" and was "as big as a small peascod". It was put in a box with some privet "on which I saw it feed as sharply as a dog gnaws a bone", but sadly it died after five or six days "by some neglect of the keeper of it".

The *vinula* larva impressed him "his eyes black as jet; his forehead purple; his feet and hinder parts green; his tail two forked and black", and towards winter "come to be covered over with strange shell or crust, called an aurelia; and so lives a kind of dead life, without eating all winter". This must be a very early use of the term aurelia for a pupa. (I have used Walton's Fifth Edition of *The Complete Angler* published in 1676; the book was first published in 1653.)

There are several mentions of other flies in use for fishing including the May-fly and the Oak-fly (?) and the whole book is full of descriptions of wildlife observed and on occasions, wildly inaccurate. So join me in remembering an old fisherman who loved the countryside so very long ago.

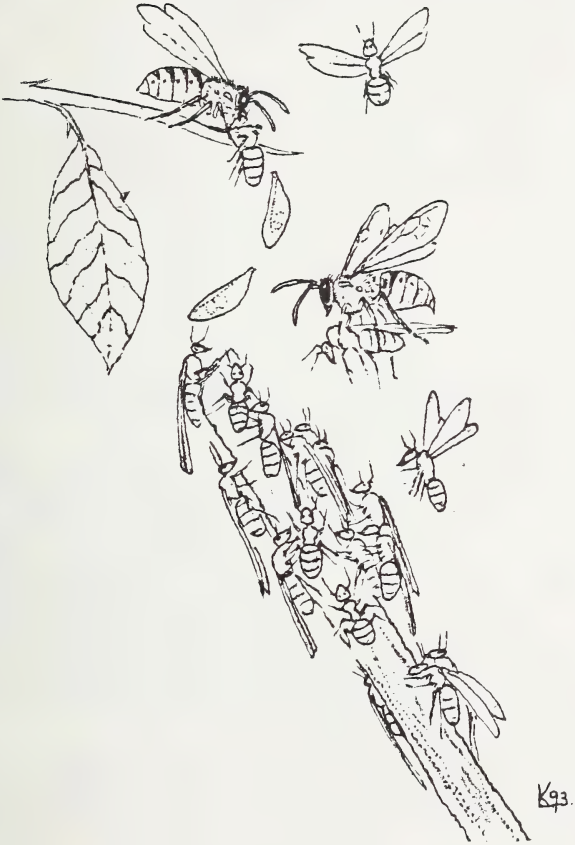
ANT TAKEAWAY

by K.C. Lewis (3680)

The day, 15th August 1993, had been very warm with temperatures into the upper seventies. But by mid afternoon the increasing cloud cover had dropped the temperature and by four o'clock it looked as if we were in for a thunderstorm; in fact all that fell were some large droplets for a few moments. Sitting in a garden chair on the patio, a cool drink by my side, I was observing the swarming behaviour of the Black garden ant *Lasius niger* (incidentally, a good way to enjoy entomology!).

They were emerging from several holes at the base of the garden shrub *Olearia sullioensis* and were climbing up a broken bamboo cane.

Although I had not noticed them before, I was aware of more wasps than usual (*Vespula vulgaris*) flying in close proximity to the swarming ants, hovering at a height of about six inches, and flying around and around the cane.



Although much more powerful insects, it seemed as if the wasps were confused by the thousands of ants, which were running in all directions, and it was always some time before one singled out an ant and flew off with it, clasping it in its jaws and legs.

The wasps never flew more than a few feet, taking their prey to an adjacent shrub, and from this vantage point they first chewed off the ant's wings (see illustration) and then made a meal of the body. During the time I observed this behvaiour I never once saw a wasp take a wingless ant.

By 6pm not a single flying ant could be seen, though the ground and path were still covered with wingless individuals, and the wasps had also lost interest.

A REMARKABLE JULY AFTERNOON IN SLOUGH

by Roger Hayward (2769)

16 Gilmore Close, Slough, Berkshire SL3 7BD.

Among the many rather ordinary moths in my garden trap on the morning of Saturday, 3rd July 1993, was a fine specimen of the Blackneck (*L. pastinum*), an addition to my Slough list. Not remarkable in itself, perhaps, but more was to come.

As my wife and daughter would be taking our car on the weekly shopping expedition in the morning, I planned to spend the whole of Saturday on jobs at home. I would prepare the back door of the garage for painting and then cut the lawns.

Well, the back door of the garage was in a worse state than I had realised, and so preparation took longer than expected. I had therefore not started to cut the grass, which is infested by the highly-resistant weed Hop trefoil (*Trifolium campestre*), by lunchtime.

The whole weekend was blessed with glorious hot sunny weather, with a fresh breeze from the west on Saturday when we sat down to lunch in the garden. At about 13.15 I noticed a small butterfly flying low and slowly over the lawn. I thought it was probably a Gatekeeper, but it seemed a trifle small and fluttery and so I walked over to investigate. Imagine my surprise to find a mint female White letter hairstreak (*Satyrium w-album*), feeding at the trefoil flowers. It was the first I had seen for over 20 years and therefore the first my daughter had seen. If my mowing had gone ahead as planned, there would have been no trefoil flowers to attract this unexpected visitor.

Other butterflies were about in the sunshine, with one or perhaps two Purple hairstreaks flying around the oak and elm trees, and Gatekeepers, Meadow browns and the Large and Small whites in twos and threes.

Mowing eventually got under way and I was nearing the end of the larger lawn at about 16.00 when I was amazed to see yet another addition to my Slough list — this time a Marbled white (*Melanargia galathea*). About 20 minutes later I was half-way through mowing the small lawn at the side of the house, where the Robinson trap lives, when a small brownish insect landed near me. My first thought was that it looked like a Dingy skipper, but on approaching it I saw that it was a Burnet companion (*Euclidia glyphica*), the fourth new species to my Slough list that wonderful Saturday. Not a bad set of records for a town garden.

What caused this glut of new records, I wonder? For I started recording here in October 1977. At least two of the four new species would surely have been more at home on chalk downland. Perhaps someone more knowledgeable than I could comment on the possibility of freak meteorological conditions.

BOOK REVIEW

Noctuidae Europaeae Vol. 2: Noctuinae II by Michael Fibiger. Quarto, pp.230, 11 coloured plates. Entomological Press, Soro, 1993. Available from Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark. Price DKK 680 (c. £68) plus postage.

This is the second volume on the Noctuinae of Europe, in a proposed series of 12 volumes (10% discount available to subscribers to the whole series). The first volume (pp.192, 16 coloured plates) has already been published and is available for the same price.

This series is comparable to those published by Harley Books and is of the same very high quality. As a Scandinavian publication it is aimed at a wide readership, being printed, as were many English books in the 18th century, in parallel columns, English and French.

The colour plates are of the usual excellence to be expected from the camera-work of David Wilson. I do, however, take exception to the fussiness of the legends. Close-printed when there is white space to spare on the page, they are also cluttered up with, to my mind, irrelevant data. Do we really need to know the exact date and place of capture? Country yes, and nearest town (or region) would be sufficient on the legends, full data given in the text. Indeed a tabular layout would have been more satisfactory here. Perhaps to make up for this *lapsus calumni* the references and the index are very clearly laid out and a pleasure to use. Would that more books followed this example set here.

More expensive (collapse of ERM and our exchange rate!) than comparable books published in Great Britain, it is essential for all those interested in Noctuidae, not just those who also collect while abroad on holiday, but since it deals with the European fauna as a whole and a number of these very similar moths keep turning up — or being newly identified as being British — it is a book to refer to when that "rather unusual" specimen turns up in the light trap.

The style is the same as that used in Volume 1; a description of each genus followed by the species therein, under various sub-headings as Bionomics, Taxonomic notes, Diagnosis, Distribution, Remarks. A number of critical species, such as *Diarsia rubi* and *D. florida,* are gone into in some detail. Fibiger is very much a "Sub-genus" and "Splitter" man. Perhaps in this day and age such a treatment is necessary and both the splitters and the lumpers have their advocates and arguments. Be that as it may, this is a highly scientific book which shows an immense depth of knowledge of the subject and very importantly, designates various Neotypes and Lectotypes, describes a new genus (*Divaena*) to accommodate *Lycophotia haywardi* Tams, 1926. Very many species are given revised status; new synonyms are designated and no less than 43 taxa previously regarded as valid subspecies are down-graded as synonyms.

Brian Gardiner

BLACK-VEINED WHITES AT WET MUD

by Leigh Plester (2968)

BioFilm Ltd., Ylä-Muuratjärvi, 41800 Korpilahti, Finland.

Further to my note of a few years ago on several gatherings of Green-veined whites at wet mud in southern Finland (Plester, 1981), I should now like to report congregations of Black-veined whites (*Aporia crataegi*) in central Finland.

There were large numbers of this species on the hill known as Vaarunvuori, close to lake Päijänne (approximately 62°N) in central Finland, on the afternoon of Midsummer eve (in 1993 officially 25th June). Groups of up to eight individuals were noted and photographed and the butterflies had a tendency to congregate at three patches along a stretch of muddy dirt road flanked by ditches overgrown with *Sphagnum* moss and immature forest.

There were over twenty individuals visible at a time. Those flying would arrive abruptly at one of the selected patches, attracted either by the sight of their snow-white brethren, or by scent. Rather often they would "dive-bomb" one of the feeding individuals, so it may be up to the first arrival to choose a patch, the others then (literally!) sponging on their colleague by making use of free information. In other words, the first individual might be attracted by a particular stimulus but the others by the behaviour of the first, rather like a flock of birds locating food. This, I must add, is a purely personal theory.

Following decades of diminishing numbers in Finland, the Black-veined white has steadily become commoner since the 1960s. Its larvae live in communal nests on Mountain ash (*Sorbus aucuparia*) saplings. The latter springs up rather quickly on clearcuts and this may (and I stress *may*) be one of the reasons for an abrupt rise in population numbers. It should be borne in mind, however, that the species has had a rather peculiar history in Europe, its disappearance from the British Isles almost a century ago perhaps constituting one of the most startling events of recent entomological times.

Regrettably, the road insects were feeding on, an original village road, will be inundated under a one square-kilometre reservoir, if plans to build a pump-fed power station are realised. A bitter controversy has arisen between environmentalists, the local council in Korpilahti, and the IVO power utility over whether this major change in land use will affect the immediately adjacent Vaarunvuori nature reserve, with its unique combination of southern, northern and eastern plants, in addition to some rare Lepidoptera. Promoting the power station, which would consume 135 GWh per year *more* than it would produce in an attempt to

even out peaks in the consumption of nuclear power from Finland's possible fifth reactor, seems to be on par with the rank disregard for biodiversity that, as publicised at Rio, has characterised the country's forestry policy during the past few decades.

REFERENCE

Plester, Leigh (1981) Green-veined whites at wet mud. *The Bulletin of the Amateur Entomologists' Society* **40**: 176-178.

ABERRANT RED ADMIRALS

by P.W. Cribb (2270)

I have received an account from Mr T.P. Harman of North Humberside of the finding of some larvae of the Red admiral, *Vanessa atalanta,* at North Newland near Brough. Five of the larvae pupated satisfactorily and appeared to be normal but the second imago to emerge lacked palpi but had two proboscises. It appeared to have difficulty in retracting these but used both to feed on a honey solution. Another fault was the absence of scales along the forewing costae. The fourth to emerge also had a double proboscis but did have its palpi.

Mr Harman also reports observing two species of dragonfly in the Brough area, one on 11th August along a disused railway line, *Aeschna mixta,* the Migrant hawker, a newly emerged female, and the other last summer while fishing the local canal, *Sympetrum sanguineum,* the Ruddy darter.

A STRANGE PLACE FOR A POPLAR HAWK TO PUPATE

by Roy McCormick (3375)

What is the strangest site where you may have found a pupa of *Laothoe populi*? In the preparations for our move to Devon I was removing an outside light fitting from the garden shed and when I took off the lampshade I was amazed to see a newly pupated Poplar hawk pupa on the bottom of the casing. I can only assume that the larva had crawled along the overlap wood of the shed and got into the fitting through the hole in the back for the wire; once in, never to get out again. It was a good job that the light had not been working for some time, otherwise the pupa would have been cooked, but it is now alive and well. When I came to clear out the contents of the shed I came across three more pupae amongst the paint tins stored on a shelf. A fine cherry tree overhangs the shed and I assume that is what the larvae had fed on.

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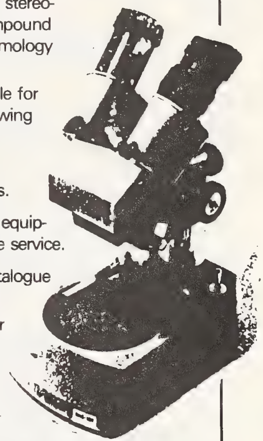

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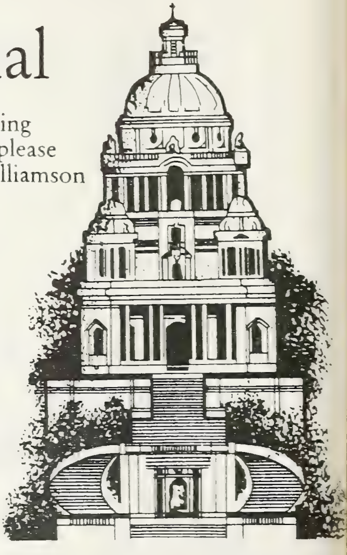

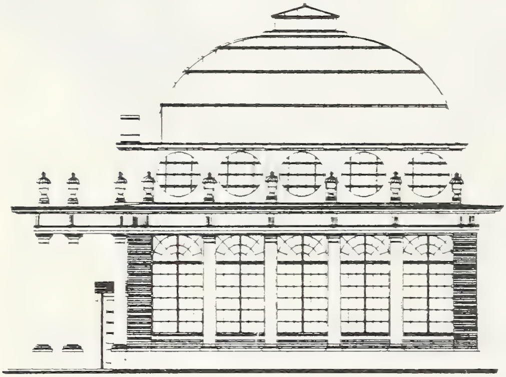

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